

**Suburban Retrofits and Form-based Codes as Tactics for Strategic Densification:
Evaluating Viability and Potential in the GTA Fringe**

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Abstract

Suburban retrofits and form-based codes are innovative planning and regulatory tools that may provide a desirable alternative to conventional suburban development practices which often produce sprawling, low-density landscapes. This research paper evaluates the viability of retrofitting tactics and form-based codes in select sites within three Greater Toronto Area municipalities and explores present barriers to implementing these tools through a collective case study. Through evaluation, it was found that retrofits and form-based codes may prove suitable for application within the selected sites, though a lack of experience with these tools by municipal staff and general resistance to intensification by residents are two major barriers preventing their implementation. Based on the barriers identified, recommendations relevant to all municipalities are outlined for incorporating retrofits and form-based codes.

Foreword

Growing up in the neighbourhood of a suburb that I essentially view as uniquely transitory and difficult to define, I have always been fascinated by the type of built environment that has emerged and continues to emerge. I knew as soon as entered the MES program that my suburban experiences would likely shape most of my research interests and naturally become the foundation for my final paper. I wanted to somehow integrate these experiences with my research interests relating to alternative planning and regulatory tools.

This paper is the culmination of my progress through my Plan of Study, which is centred on the three components of Ontario land-use planning policy analysis, livable/sustainable urbanism in suburbia, and urban design in suburbs. The major paper fulfills a large percentage of my learning objectives, thus it is a central element to the completion of my Plan of Study. Through course work and field experience I have explored a variety of specific learning objectives in the hopes of understanding ways to encourage more livable and sustainable suburban development in the most practical ways possible.

Change and transformation is inevitable in life, and the same can be said for the suburban areas I have examined within this paper. Gradual impending urbanization will occur in the highlighted municipalities, likely quicker than we may anticipate, and it is necessary to shift common perceptions of these areas as irrelevant in discussions of the urban. I hope to encourage the thoughtful exploration and consideration of newer kinds of planning and regulatory tools within these suburban areas, and the acknowledgement of these places as continually urbanizing places that require more progressive and involved planning tactics.

Recognize that suburbs have a strong tendency not to remain as suburbs.

Take good note that the town hasn't always been what it was.

Georges Perec, *Espèces D'espaces*, 1974

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I – Introduction

Canadian planning policy has long encouraged compact form, increased density, mixed-uses, and a variety of housing options (Grant, 2002).¹ Mixed-use in particular became a planning principle by the mid-1980s, as many Canadian communities incorporated mixed-use zones into their land use by-laws (Grant, 2002). Despite these policies, there is a common spatial reproduction of ideologies associated with the “Canadian dream” in the form of detached homes and subsequent sprawling built environments in planning practice within suburban areas (Grant & Scott, 2012). This disparity between policy and practice is the primary catalyst for this research and one of the main themes that links the case studies within this paper. The challenges of the modern North American suburb—as epitomized in the sprawling suburbs of the Greater Toronto Area (GTA)—necessitate considerable attention to alternative approaches towards the planning, design, and retrofitting of suburbs. Thus, the purpose of this paper is analytically challenging the status-quo by uncovering the potential of specific kinds of alternative planning and regulatory tools, such as suburban retrofits and form-based codes (FBCs) in mitigating the negative effects of the previously mentioned kinds of suburban development.

The cases within this research were strategically selected in order to examine and demonstrate how planning and regulatory changes are often prevented from occurring in North American suburbs. The need to explore alternative regulatory frameworks for the purposes of intensification within suburbs is emphasized through this research. This paper is based upon the idea that there is no better theory than a good practice. It attempts to investigate and offer insight regarding the aforementioned issues and challenges affecting suburbs, particularly in the GTA context.

¹ The 1970s is noted as the primary beginnings, with social mix becoming popular at this time coupled with the strong influence of Jane Jacobs on Canadian planning who was actively a part of Canadian debates.

Research Questions

This study examines the potential applications of alternative planning and regulatory tools, FBCs and retrofitting tactics, in the specific context of places identified as fringe suburbs in the GTA. The paper is presented as a collective case study identifying three notable fringe suburbs: Markham, Richmond Hill, and Vaughan. Each municipality is examined in terms of its current planning regime, while specific sites within these municipalities are then analyzed to determine their feasibility for densification related to FBC and retrofitting tactics through simulated programming. For this purpose, this paper examines the process and outcomes of the cases to address the following research questions:

1. How can retrofitting tactics and FBCs be applied to uniquely suit and intensify identified sites within the selected municipalities?
2. What distinctive political and social challenges does each municipality face in attempting to implement retrofitting and form-based tactics? Why are these tactics currently not being utilized or considered?

Methodology

This qualitative research is based upon the collective case study approach. The collective case study approach examines the same research questions within various contexts and uses identical methods of data collection and analysis (Goddard, 2010, p. 3). The case study design itself allows for multiple sources of evidence to be utilized, a feature commonly defined as triangulation, and is useful for both data collection and analysis (Evers & van Staa, 2010, p. 3). In using the collective case study approach, it was necessary to maintain a degree of structure within each interview to ensure that there was appropriate cross-case comparability (Bryman et al., 2009, p. 160).

Site Visits and Analyses

Multiple site visits were conducted from September 2013 to March 2014 in order to observe any new developments throughout the research period. Field work was conducted to document each site

through photographs and data collection. Site visits allowed me to gain a more intimate understanding of the streetscapes, and the data collected inform the SWOT analysis for each site. Site visits also allowed for increased understanding of the underlying Secondary Plans related to each site and familiarization of site layout to develop individual site programs within the case studies. I created morphological block figures for each site as an additional means of analysis and interpretation of existing built form and future development.

Policy and Planning Document Review

This research incorporates a review of primary policy and planning documents that are relevant to the municipalities examined; these include Official Plans, Secondary Plans, and Zoning By-laws. These documents were particularly significant in terms of understanding the goals, priorities, and visions of each municipality. Design guidelines, position papers, news articles, archival materials, and other documents were also reviewed for the purposes of this paper.

Literature Review

A comprehensive literature review was conducted to provide a foundation for the cases presented within this paper. The literature review addresses multiple themes including zoning, New Urbanism, Smart Growth, and the concepts and tactics of retrofitting and FBCs within North America.

Semi-structured Interviews

Semi-structured interviews were conducted with five participants, with one additional informal and unstructured interview. These interviews served as the principal means of gathering information to inform the case studies and to investigate the barriers to implementation. A variety of interview participants were contacted with reference to professional experience and positions within their respective departments.

The primary participants in these interviews included public sector representatives from the City of Markham, the City of Vaughan, and the Town of Richmond Hill. Two of these participants hold more senior and experienced positions, while one participant maintains a moderately experienced position. All interviews were audio taped with the consent of participants. Prior to conducting the interviews, all participants were informed that their identities would remain anonymous as per informed consent forms, unless preferred otherwise. All participants excluding two maintained their right to conceal their identity and remain anonymous.

Choosing a variety of participants was very important for this research in order to obtain diverse opinions from practitioners in different professional positions, which ultimately shaped a large portion of the research context and analysis. While an interview guide was used for each of my interviews, I allowed the participants to have more control over what topics they wanted to emphasize and which questions they did not want to address in much detail.

Organization of Research Paper

This research paper is organized into five chapters. Following this first introductory chapter, the second chapter outlines a comprehensive review of the foundations of several major themes and topics relevant to the paper including the suburban context, urban design within suburbs, retrofitting, zoning, FBCs, New Urbanism, and Smart Growth. The third chapter begins with best practices of FBCs in North America and proceeds to consider the GTA context and examine each municipality and its overarching policy framework. The fourth chapter engages in site analyses and profiling, exploring each site's individual assets that may be leveraged for density through individual programming. Chapter four ends with a discussion of challenges relevant to each site and municipality, supported by interview data and site programming. In the final chapter, an overview of previous case studies and commentary regarding

challenges faced by all municipalities in the implementation of FBC and retrofit tactics are provided along with broad recommendations for implementation.

II – Literature Review

“Build and Be Damned”

The title of this section is taken from a 1950 article in *The Atlantic* written by Robert Moses—known as a controversial development figure whose nearly 40-year reign influenced both New York city’s politics and physical transformation in the twentieth century—where he denounces the lack of planning in the “monotonous” and fast emerging postwar suburban subdivisions, poor Federal Housing Administration (FHA) policies, and over-lending. New York’s master builder of highways condemned and renounced these suburban subdivisions as “uncontrolled boom building” and called for communities to “resist the ruthless modern developer.” He wrote that the subdivision brochure “contains distorted maps, claims that distant places are within easy commuting range, and pictures kitchens replete with shining gadgets... gardens reminiscent of Marie Antoinette and the Tuileries” (Moses, 1950). This scathing early description of the postwar suburb comes as a humorous surprise, written by the greatest proponent of highway developments that destroyed the urban fabric of many existing communities. Yet even Moses fully realized the flaws inherent in these subdivisions, despite his active role in initiating them.

Moses’ calls for more careful planning of these new suburban areas may appear quite contradictory, considering his role as a primary catalyst for suburban sprawl. Notwithstanding, much of what Moses wrote some 64 years ago still appears particularly relevant. Evidently, there has been continuity in the North American subdivision boom. The article’s title, “Build and Be Damned,” may very

well summarize the inner monologue of many current protagonists of sprawl who disregard future consequences in favour of present gains.

Grant (2013, p. 391) states that there is no greater defamed urban form in public discourse than the “American-style residential suburb.” The suburban landscape is physically viewed as mediocre in design, bland, and uniform (Larkham, 2004, p. 241). While this prevailing view has led to a longstanding campaign in North America to attempt to limit sprawl, there is a lack of evidence showing that this has led to any significant changes in urban form to the extent that benefits are gained from compact development (Blais, 2010, p. 73). Suburban growth in low-density patterns still stands as one of the greatest challenges in North American cities.

The consequences of sprawling places have been well-documented (Jackson, 1985; Fishman, 1987; Hayden, 2003; Beauregard, 2006) and it is not the intent of this research to exhaust these findings or attack suburbia from the antagonistic perspective that has been pervasive in the literature. It is also too easy to suggest that suburbs are unsustainable. Instead, I aim to present a view of North American suburbs as increasingly diverse and complex spaces, not as “placeless nowheres” (Phelps, 2010) and sites of non-history. Our stereotypical and dated view of these places needs to evolve and coincide with the actual changes occurring in them (Hertel & Keil, 2013) in order to appropriately facilitate emerging patterns of urbanization.

There is no true consensus in the definition of a suburb (Forsyth, 2012). It is the inherent fluidity of the suburban landscape through time that makes it difficult to produce a comprehensive definition (McCann, 2004, p. 112). Dialogue and perception regarding suburbs shapes how these areas may later be seen in their potential to be developed and redeveloped (Forsyth, 2012), therefore making it necessary to shift negative interpretations of these places. This research primarily focuses on the dimensions of the physical, functional, and built environment of the suburbs. I maintain a largely

locational definition of the suburb that is nuanced in order to provide a strong basis for comparison. I particularly focus on the fringe suburb, which will be discussed further.

The large percentage of new growth that is likely to continue to occur in Canadian suburbs is an opportunity to recast these suburbs as more urban and sustainable places which requires reorganization and strategic densification. Retrofit projects seek to guide this growth in improving the sustainability of the system as a whole (Dunham-Jones, 2005, p. 8), and appear as a generally pragmatic approach. Reurbanization and redevelopment can also be a generally low-cost way of accommodating new urban growth (Blais, 2010, p. 59).

Sub(Urban) Design, Form, and Morphology: Recognizing Complexity

Though it has consistently been inherently multidisciplinary, the practice of urban design has emerged with its own identity and has established itself as a distinctive field from planning and architecture (Banerjee & Loukaitou-Sideris, 2011). It is difficult to trace the entire supposed history of urban design, likely due to its participation in multiple fields, so this concise review selectively addresses a more recent history. Contemporary urban design identified from the early twentieth century finds its roots in the establishment of the influential International Congress of Modern Architecture (CIAM). CIAM was established in 1928 by Le Corbusier and other designers who promoted city-building ideas, later producing the Athens Charter in 1941 as a decisive manifesto of modernist urban design (Birch, 2011, p. 12). Notable scholars and professionals including Jacobs (1961), Lynch (1960), Bacon (1967) and others would later produce critical publications addressing design theory relating to CIAM through the 1960s and 1970s (Birch, 2011, p. 18). It was through works such as Lynch's (1960) *Image of the City* that design in the built environment was demonstrated as highly specific and intricate. The beginnings of urban design can be seen as a point when the organization of cities were examined more closely in

form, moving beyond basic city-building “schemes” (Birch, 2011, p. 26) that did not acknowledge human interactions and experiences.

Southworth and Parthasarathy (1996, p. 248) identify the emergence of suburbs as a predominant settlement pattern in North America during the last half of the nineteenth century. The emergence of the resemblance of modern suburban form can arguably be traced to the adoption of Ebenezer Howard’s garden city concept during this period, advocating for a more regional pattern of urban units that essentially was a way to “bridge the gaps between the city, the suburbs, and the open region” (Southworth & Ben-Joseph, 1995, p. 71). A fundamental concept within the design of suburbia has always been the attempt to merge country and city (Archer, 2011, p. 356) as exemplified in the garden city model. Grant (2006, p. 29, 41) identifies the garden city model as the ideal prototype that heavily influenced the dominant suburban form and arguably the advent of New Urbanism. Of course, the suburban form with its wide lots and winding streets is far from the ideal garden city model.

Ewing and Bartholomew (2013, p. 2) describe urban design as unique from planning in terms of its scale, orientation and treatment of space. Scale refers to those features including the street, sidewalk, park, transit stop, while orientation is viewed as aesthetic and functional, and treatment of space is three-dimensional (Ewing & Bartholomew, 2013, p. 2). Lang (1996, p. 8) views urban design as being concerned with aesthetic values and “the behavior settings that constitute the lives of a city’s inhabitants” and the relationship of these settings to each other. What is urban design, then, when applied in the context of a suburb which does not prioritize or reward the pedestrian experience crucial to scale alone?

The difference identified in suburban design argued above is based upon both the recognition of suburban complexity and the challenge posed by the perpetuation of bland and commonplace design. Downing and McGuirk (2006) identify that “the suburban landscape is constituted by a multitude of

built forms, neighbourhoods and demographic characteristics.” This articulation of suburban complexity acknowledges the variety and intricacy of the built environment of these areas and ultimately differentiates the suburbs from the city by considering the challenges primarily faced in design and form. The common description of cities as complex and dynamic kinds of built environments is seldom applied to the suburbs, and usually regarded with a lack of theoretical attention (Vaughan et al., 2009). In actuality, there is a large amount of aesthetic diversity in suburban areas (Forsyth & Crewe, 2009). Similarly, Kolb (2008, p. 162) argues that New Urbanism is an expression of place complexity due to its concern with spatial and social arrangements. While Kolb’s (2008) view is likely debatable, it brings forward alternatives to thinking about spatial patterns and form in suburbs.

While suburbs are argued in the literature above to be complex, their development continues to be hindered by those designing the majority of these areas who reproduce what can be seen as a “formulaic, market-driven and unimaginative” development patterns (Dunham-Jones, 2000). As older suburban areas, specifically inner-ring and fringe suburbs, organically begin to deepen their complexities and mimic the incremental urbanism of the city through time, they become more vulnerable to decline as a result of these market-driven sprawling development patterns and poor design standards. Grant (2008b) identifies the continuation of Harris’ “creeping conformity” of the Canadian suburb, and posits that it has taken on new forms through the promotion of privatization of residential areas, leading to homogeneity that is applicable to design. Dunham-Jones (2005, p. 13), argues the overuse of “default designs” and the “set of generic standards” that do not take into consideration existing and emerging local culture and social patterns within a North American context. It is the reconciliation of suburban complexity with poor physical design activity that makes it necessary to identify and pursue a unique suburban design.

Urban morphology refers to the study of the physical form of cities over time. Embedded in the study of morphology are two distinct binary forms consisting of traditional and modernist. The

“traditional” consists of urban blocks that define and enclose space, whereas “modernist” is viewed as free-standing pavilion buildings within landscape settings (Carmona, 2003, p. 77). Employing these morphological concepts to the examination of suburbs provides opportunities for a thorough and complete understanding of built formation and its structuring.

Another important concept identified by urban morphologists is around the idea of the tissue. Tissue is defined as an urban formation where building types, lots, blocks and streets have certain characteristics or congruences (Scheer & Stanilov, 2004, p. 108). Tissue analysis contributes to rethinking networks that resemble sprawling areas in favour of new kinds of suburban growth that is more compact (Scheer, 2001, p. 36). Tissue analysis has more recently been paired with retrofitting and unique scoring systems have emerged that combine these concepts (Tolentino, 2011). From this, visualizations of potential outcomes of redevelopment approaches become more accurate and efficient in configurations (Williamson, 2009).

In considering city shapes and space, morphology provides a useful lens to rationalize change and transformation by opposing a static view of the city (Crang, 2000). Applying these more technical and precise approaches in evaluating and analyzing the built environment and its form can provide new ways of thinking about suburban redevelopment. Suburban morphology can act as a foundation for the future development and reconfiguring of suburbia as innovative, practical, and respectful of historical urban structure and local identity (Vachon, Luka & Lacroix, 2004, p. 54). McCormack (2013) maintains that without a morphological form-based framework that has a strong conceptual basis, suburban areas on the urban periphery will uphold their incoherent form. Additionally, some aspects of urban morphology may contribute to place identity and generate “new social solidarities” for residents (Gospodini, 2004) that may be especially useful for placemaking in suburban areas. This mitigates the idea of “the amorphous suburbia where identity and distinction are lost to bland universality and monotony of form as well as use disorientation” (McCormack, 2013, p. 90).

Williamson (2009, p. 75) states that one of the most significant markers used in evaluating the success of a retrofit project is “the degree to which the redevelopment approach transforms the underlying urban patterns of lots, blocks, and streets from suburban to urban configurations.” This use of morphology to assess retrofits is most relevant to this research because it is consistently difficult to attempt to reshape the region due to longstanding policies and standards in planning and development (Southworth & Ben-Joseph, 1995). Concepts relating to urban morphology can provide a framework for new kinds of spatial and aesthetic opportunities in the constantly evolving suburban landscape. The increasing unsustainability of suburbanization as well as the challenges relating to suburban complexity provide a reason to consider more innovative planning tools and concepts. Morphology and tissue analysis methods will be discussed within chapter four to provide an alternative perspective on the application of retrofits and FBCs.

The Retrofitting Strategy

A relatively new U.S.-based phenomenon made possible through the challenges faced within suburban environments, is ‘suburban retrofitting’—a term that is becoming more common in the planning and design lexicon, though somewhat ambiguously. Although it is difficult to accurately trace the beginnings of the use of ‘retrofitting’ as terminology within a planning and design context, the term gained increased attention in the literature in the late 1990s (Buchsbaum, 1998; Girling & Helphand, 1997) and recently through the late 2000s and onward (Eames et al., 2013; Rice, 2010; Vall-Casas et al., 2011; Boarnet et al., 2011). Dunham-Jones and Williamson’s (2011) text acts as the foundation for the term within the context of this paper. Instead of providing a distinct analytical or critical methodology in the text, the authors provide a series of tactics and methods as the basis of their approach.

The concept of retrofitting suburbs is unique in the sense that many discussions regarding the typical North American suburb in a primarily negative context make the case for discontinuing suburban

development altogether and focusing on furthering density within the metropolitan central city. This outlines the North American suburb as a kind of lost cause which warrants little attention with regards to opportunities for urbanization or densification. There has been a lack of research regarding intensification of suburbs and the concept has previously been viewed as unattainable (Rice, 2010, p. 194). Further, it appears there is a general widespread difficulty in transitioning from postwar development patterns and trends, specifically in the Toronto region where there is a tendency towards structural stability (Filion, 2010).

Suburban retrofits within the framework of this paper refers to tactics applied to auto-dependent and underutilized suburban areas which aim to shift towards more vibrant and liveable communities. Retrofits work with existing structures and spatial forms in order to transform unhealthy types of patterns and behaviors to more sustainable ones (Dunham-Jones & Williamson, 2008, p. 3). This paper identifies a specific typology of suburb in which retrofitting tactics are applied, the fringe suburb, and examines the relationship these suburbs have in being in close proximity to a major city centre. The application of these tactics to the fringe suburb involves targeted densification and diversification that aims to capitalize on the specific strengths of a site that currently exist or are planned to occur. These identified strengths may include transit connections, proximity to the boundaries of a city centre, potential for increased active transportation, among others. Retrofitting can occur at a variety of scales: the single parcel or building, the vacant lot, the corridor, or it may occur at a policy level (E. Dunham-Jones, personal communication, October 29, 2013). There are many different forms that retrofits may take in order to simultaneously address the overarching challenges inherent in typical suburban development patterns (Dunham-Jones & Williamson, 2011, viii). The prospects for retrofits in Canada is seen as being quite high, and there is a significant opportunity present for applying these techniques nationally (E. Dunham-Jones, QUEST Conference Keynote, Nov 13, 2013).

There are three main categorizations of suburban retrofitting tactics, as identified by Dunham-Jones and Williamson, which will be used in this paper when referring to the term itself. These tactics include re-inhabitation, redevelopment and regreening (2011). Re-inhabitation is the adaptive reuse of existing buildings or structures for more community-serving purposes, and are usually reformatted as third places that facilitate social interaction. Redevelopment is the common practice of replacing existing structures or building on existing surface parking lots. This is done in order to produce and encourage more compact, mixed-uses and public spaces. Redevelopment also aims to support a more social engaged lifestyle, which is similar to the goals of third places within re-inhabitation. Lastly, regreening refers to the demolition of existing structures, as well as the revitalization of land into parks, community gardens, reconstructed wetlands or anything similar. Regreening can sometimes be used as a phasing strategy for partial development (Dunham-Jones & Williamson, 2011, viii).

Retrofitting not only draws attention to discussion regarding the inevitable transition from auto-oriented environments to human-scale and diverse places, but it also actively facilitates these changes by outlining a specific set of principles on how this may occur. Gordon and Janzen (2013) estimate that suburban areas constitute approximately 80% of Canada's metropolitan population and 66% of the entire population, while only 12% reside in "active core" areas. Exurban areas are excluded from this study, therefore suggesting an even higher proportion of suburban residents (Gordon & Janzen, 2013, p. 213).

Similarly, the overwhelming majority of the three municipalities examined in this paper can be classified as auto-suburbs (See Figure 2.1). These findings are significant because they highlight the actual amount of vast low-density spaces that have high potential for redevelopment and are likely to see a large percentage of new growth, yet are arguably not being considered for appropriate kinds of intensification. New growth occurring in these areas usually takes the form of single-detached dwellings and low-density developments, perpetuating the cycle of ineffective development that has been longstanding. Retrofit projects seek to use new growth in suburbs as catalysts for change that allows the existing built environment to evolve into more sustainable systems as a whole (Dunham-Jones, 2005). As suburbs increasingly appear to “behave like cities” (Dunham-Jones, 2005) and develop new complexities, it is necessary to design and plan for these areas using tools and methods that complement these evolutions appropriately.

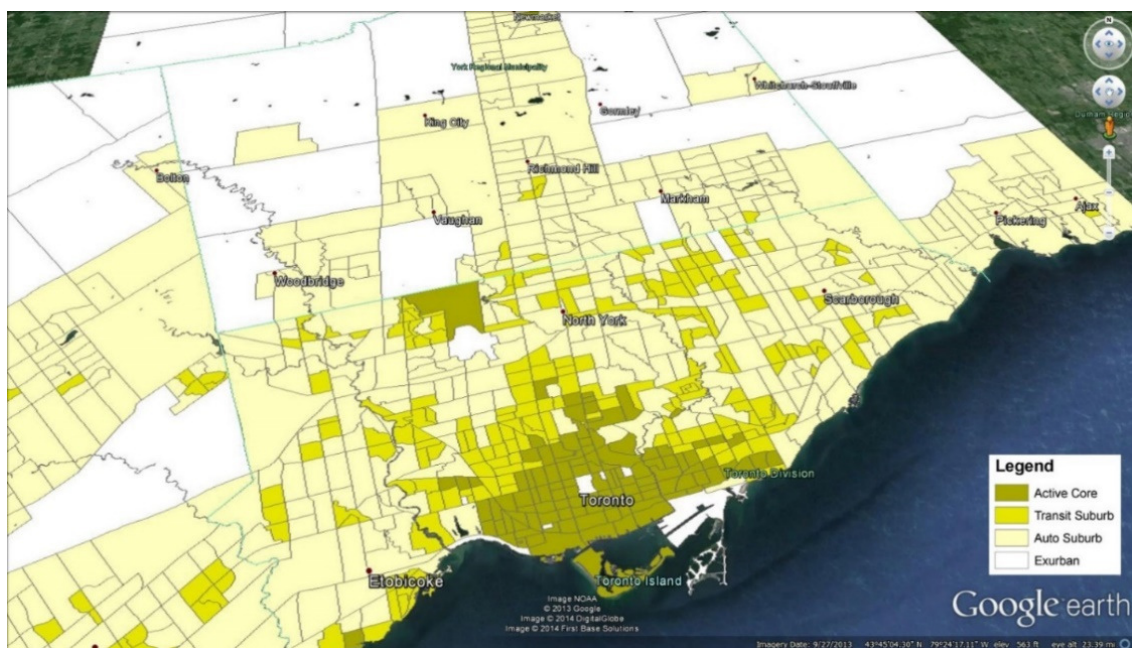


Figure 2.1: Suburban nature of Greater Toronto Area using the "Density Method." Source: David Gordon, *Canadian Suburbs*, 2012

Retrofits will be utilized in this paper as a platform for exploring the viability of site-specific densification strategies, along with the applicability of FBCs. There does not appear to be a prototype within the outlined retrofitted projects and studies compiled by Dunham-Jones and Williamson (2011).

The guidance that the case studies provide is preferable to a complete example of retrofits, as they provide flexibility and room for integration of other tactics and ideas. This paper utilizes this approach by integrating FBCs and morphological analysis.

Zoning: A Concise History and Overview

Zoning is one of the most comprehensive and powerful regulatory tools but is also one of the most overlooked and ordinary of implementation strategies. To attempt to reform zoning in some notable ways and access the untapped potential that it truly holds proves to be a great challenge in the current practice of planning. Before engaging with the present state of zoning and the prospects of newer kinds of codes and regulations, it is necessary to provide a brief overview of North American zoning history to situate this discussion and review what has not worked in traditional zoning and how these specific elements might be fixed. This review will attempt to address the underlying issue of strict separation of land-uses within zoning that has perpetuated a variety of significant issues in development and planning, especially within suburban areas. This section is a necessary precursor to discussion of FBC's as an alternative supplement or replacement. The issues and critiques related to Euclidean zoning and the legacy that the case itself has left within the North American regulatory environment will be examined.

Zoning's nearly 100 year history began in the U.S. shortly after 1910 when numerous cities had ordinances representing certain features of modern zoning, usually only addressing concerns in the developed areas of cities (Fischel, 2004, p. 318). Early regulations that would later evolve into American zoning were initially concerning requiring the separation of buildings in order to control the spread of fire and provide access to sunlight and air (Parolek et al., 2008, p. 6). The first true example of land-use zoning that regulated the future use of property was in Los Angeles in 1904 (p. 7). In 1916, the first comprehensive zoning ordinance was passed in the U.S. in New York City, establishing the setback

principle and restricting the location and height of skyscrapers to specific streets (Bressi, 1993). This landmark zoning ordinance was introduced as a way to secure property values for the merchants on Fifth Avenue, and later to protect land values in general (Talen, 2011, p. 527).

Many American cities soon followed New York in establishing zoning ordinances, including the town of Euclid. In the significant case of *Village of Euclid, Ohio v. Ambler Realty Co.* of 1926, the constitutionality of zoning ordinances was upheld by U.S. Supreme Court when the ordinance of Euclid was challenged by a local land owner claiming restriction of use of property in violation of the Fourteenth Amendment (Levine, 2006, p. 51). This case reinforced the public bias of multifamily housing as being substandard and undesirable (Parolek et al., 2008, p. 7). At the same time, the “segregationist intent” of traditional zoning had already been decisively established prior to the ruling of the case (Talen, 2011, p. 527). Fischel (2004, p. 319) determines that the rise of zoning is not exclusively due to addressing incompatible uses using other means that were not nuisance laws and covenants, as appears to be the most common explanation. Instead, traditional zoning can be seen in one of its main purposes as protection for homeowners who were concerned about devaluation from primarily industrial and apartment uses (Fischel, 2004). The earliest regulations were intended to avoid or minimize the undesirable consequences of uncontrolled development.

The first Zoning By-law enacted in Canada is generally agreed upon to be in the City of Kitchener’s in 1924, preceded in the nineteenth century by various nuisance acts in residential areas. At the time, restrictive covenants were in place to protect many residential areas from noxious uses and were also used as an exclusionary tactic against various ethnic groups. These exclusionary tactics would continue well beyond the 1920s, with many restrictions still in place twenty years later (Wolfe, 1994). Zoning was recognized in Canadian planning law in 1925 when British Columbia adopted its initial planning statute (Simmins, 2011). This period between 1900 and 1925 is viewed as significant in pioneering much thought and practice related to community planning in the country, and it also signals

the emergence of a planning profession (Hodge, 1985, p. 13). With the revision of the Planning Act in 1946 came the establishment of the Official Plan, which included subdivision and zoning rules (Wolfe, 1994). It is often overlooked that zoning quickly spread to suburban areas and small towns during this time, and was not just confined to metropolitan areas (Fischel, 2004, p. 319).

While zoning originally developed in the same way in Canada and the United States regarding nuisance laws and protecting property rights, personal property rights are one area of difference. Municipalities in Canada were granted statutory power to regulate land use, while the U.S. Constitution identifies the limits of state intervention in relation to personal property rights. This has produced issues in zoning practice in the U.S., where zoning actions are questioned in their “taking” of property rights. Alternatively, Canadian zoning issues are usually more general in regards to discrimination in pursuing the public interest. This has resulted in Canadian Zoning By-laws having more scope, similar to those in the United Kingdom, and reveals the core differences between the U.S. and Canadian systems (Hodge, 1985, p. 18).

Since the arrival of Euclidean zoning, many have highlighted the broad range of issues that have followed in land-use patterns. At its core, and “operating from the premise that everything has its place, [Euclidean] zoning is the comprehensive division of a city into different use zones” (Juergensmeyer & Roberts, 1998, as cited in Hall, 2007). Traditional zoning has regularly been the subject of consistent criticism (Ben-Joseph & Szold, 2005; Talen, 2012) that usually relates to the inflexibility inherent in the system and the physical separation of zones, leading to issues in decision-making prior to development (Ottensmann, 1998; Levine, 2005). Reps (1964, as cited in Ottensmann, 1998) states that zoning “balkanizes” cities into separate districts that consistently prevents a mix of uses, despite cases where this would be preferable. Boyer, quoted in Hirt (2013, p. 205), describes zoning’s severe separation of uses as “the division of cities into ‘cells’.” Hall (2007, p. 918) defines the traditional method as reflecting a “functionalist view of the city as a ‘machine, rather than an ever-evolving organism’.”

Zoning is viewed by Duany and Brain (2005, p. 310) as “an instrument of statistical control” that is focused on the distribution of functions. Siegan’s (1972, p. 21) question of whether land is being regulated for the sake of regulation brings forward legitimate concerns relating to a lack of self-reflection by practitioners. Talen (2013, p. 175) similarly believes that traditional zoning has been “despised” by planners for over 50 years, additionally citing Feiss’ question of if planners were “lulled into a coma of mass acceptance” of traditional zoning. Talen (2012) also identifies zoning as part of regulation that has come to be known as the “antithesis of diversity.” With reference to acceptance described by Talen, Ben-Joseph (2005, p. 171) also notes the extremely slow rate of change among longstanding attempts to reform regulations in the planning environment, and states that the current standards have now “attained the power of a generic imperative.”

Environmental injustices and inequalities have also been a common area of concern in relation to zoning. In the case of planning Hamilton’s industrial waterfront during the mid-twentieth century, Cruikshank and Bouchier (2006, p. 301) state that the “designation of urban space through zoning-advocated and supported by urban planners-legitimated and even deepened environmental inequalities in the city.” Following the leadership of E. G. Faludi, planners developed a new master plan and Zoning By-law which increased industrial encroachments on neighbourhoods and reduced the quality of many existing neighbourhoods (Cruikshank & Bouchier, 2006, p. 300). Maantay (2001) outlines a similar study in New York City which identifies the concentration of noxious uses near minority or low-income neighbourhoods and the rezoning of more affluent areas for other uses, preventing environmental burdens from impacting wealthy residents of the city. Evidently, the supposed strength of separation of uses found in conventional zoning that is meant to deliberately prevent these types of harmful uses from intruding on residential areas ultimately fails, bringing forward serious questions of equity and land-use.

Elliot (2008, p. 26) identifies two main schools of thought regarding criticism of zoning after it became common. The first is those who believed the system to be overly complicated. The lack of limits in zoning districts that can be created affected the “idea of uniformity” in the districts themselves. The other side of criticism is related to the potential for abuse in switching from a select few districts to smaller and specialized zones (p. 27). Many New Urbanists have been vocal in opposing traditional zoning, with reference to issues in high-quality design that is most relevant to the principles and ideas suggested by the movement as well as reaffirmation of protection of property values (Duany & Plater-Zyberk, 1991; Diamond and Noonan, 1996; Duany et al., 2010). For Siegan (2005), the concept of zoning as a whole is not seen as necessary even in the most complex metropolitan areas, citing the example of Houston and the benefits encountered in maintaining an unzoned landscape.

Despite multiple efforts to alter the zoning system, Hirt (2013) states in her findings that the core of traditional zoning has ultimately remained unchanged. This challenges Elliot’s (2008, p. 48) broad view that the result of various zoning alternatives introduced has produced a general ‘Euclidean hybrid zoning’ model. It may be easy to assume that because these alternatives have become particularly well-known and increasingly discussed in the literature that they are automatically all affecting traditional zoning in most cities, to a certain degree. While some experimentation with alternatives such as FBC’s and performance zoning has occurred, this represents only a small fraction of zoning practice with approximately 97% of incorporated communities using traditional zoning in the United States alone (Hall, 2007, p. 917). Modifications to development standards have commonly been discouraged in many local governments (Ben-Joseph & Szold, 2005), and the adherence to traditional zoning demonstrates this quite clearly.

Through Euclidean zoning’s “separationist principles,” Hall states that (2007, p. 925) mixed-uses have been transformed into segregated, single-use areas affecting the vibrancy of cities that serve vehicles and not pedestrians. At the time when it was incorporated throughout the U.S., Euclidean

zoning was originally meant to stabilize existing areas and prevent them from changing too rapidly. These original attempts to segregate uses can be seen as the result of “elitist attempts to protect property values and exclude ‘undesirables’ from areas of cities” (Parolek et al., 2008, p. 7). Evidently, this type of regulation and separation of primary uses is no longer relevant to many North American cities in achieving a vibrant and functional city in the current ‘post-industrial era’ (Hirt, 2013, p. 226).

Traditional zoning methods restrain density and prioritize the vehicle in an exceptionally unbalanced form. Jane Jacobs’ prominent twofold description of this method as too rigid in division of single uses and low-density districts, and too permissive in design standards for streets and how buildings front them, is still one of the most accurate (Wickersham, 2001). Elliot (2008, p. 29) states that ultimately it is the reliance on the predictability of traditional zoning that keeps it in place, despite all of its complexities and exclusionary issues. As demonstrated, the issues addressed that are associated with traditional regulations were, in fact, intentional and not produced accidentally. The legacy of this zoning method has produced what Talen (2011, p. 527) describes as “homogeneous, simplistic, monotonous forms of order.” Talen (2011, p. 528) also identifies the division between zoning and planning and the effects that separation of the two has produced, including a disorganized spatial pattern in the U.S. and an overall lack of “appropriate definition of space.”

Zoning has been highly effective at averting change and segregating primary land-uses, though accommodating and acknowledging change in the suburban built environment is necessary. Pressure for change within the municipalities outlined in this paper’s case studies is high, and it is questionable if it is feasible to continue with traditional zoning alone. Cities and neighbourhoods in or near urban areas are in constant flux and traditional zoning appears as a type of stranglehold in affecting the necessary changes that need to occur, as revealed in the literature. Alternative approaches to zoning, focusing on FBCs, will be introduced in the next section of this review.

Conventional Zoning and Form-based Codes

In the previous section, zoning is discussed as a tool that segregates uses and therefore complicates attempts at mixing uses. Alternative methods of zoning were introduced briefly. This section outlines the emergence and premise of FBC's, and explains how they may be applied as one alternative or supplement to zoning. It concludes with common critiques and a brief investigation into whether FBC's may be sufficient in addressing the challenges previously discussed in traditional zoning. This section provides the basis for understanding and interpreting the case studies undertaken in this research.

Throughout the 1960s and 1970s, many communities began to re-evaluate traditional zoning regulations and attempted to implement modifications that included performance zoning and incentive-based zoning which proved to complicate the system further, described by Parolek et al. (2008, p. 8) as “band-aids” to the solution. FBC's emerged shortly after these attempts and can be traced to New Urbanist designers Duany and Plater-Zyberk (DPZ) in Seaside, Florida in 1979, where an effort to merge plans, zoning ordinances, design guidelines and building codes occurred (Knack, 1989; Mohny and Easterline, 1991). The development code for Seaside was drafted by DPZ in 1981 and represents one of the first significant applications of FBC's (Parolek et al., 2008, p. 9). FBC's only first appeared as a unique term in 2001, identified by Chicago consultant Carol Wyant almost twenty years after Seaside (Parolek et al., 2008, p. 10). Tachieva (2010, p. 15) states that the regulatory environment appears to be changing, as FBC's have been implemented in over 80 cities in the U.S. (See Appendix A) and that these approvals represent a notable shift in the regulatory framework. Despite these advancements, FBC's have unsurprisingly encountered significant opposition from the beginning (Talen, 2011, p. 526).

Talen (2009, p. 146) identifies the vast variations of development codes, including FBC's, in the process of attempting to define them. Because they “exist at a variety of scales,” it can be problematic

to distill an all-encompassing definition of FBC's (Talen, 2009, p. 146). It is also difficult to find a firm definition of the term due to the fact that "form-based code" is currently not a common term in the planning lexicon. FBC's are described by Parolek et al. (2008, p. 4) as "a method of regulating development to achieve a specific urban form," that produce a predictable public realm through control of physical form that de-emphasizes land-use. They go on to describe FBC's as "an alternative method of land development regulation" that is an influential tool in empowering communities to require better development patterns and projects (Parolek et al., 2008, p. 4). For Katz (2004), the codes are primarily concerned with the dimensions and locations of buildings, streets, frontages and similar elements that make up the physical design of place, and are not focused on use. This approach "builds on the idea that physical form is a community's most intrinsic and enduring characteristic" (Katz, 2004). Parolek et al. (2008, p. 11) also reveal that FBC's are "vision-based," meaning that the community works together to create a detailed vision at the beginning of the development of the code and enforces the vision to the end of the process.

FBC's are recognized by Szold (2007, p. 380) as a trend in suburban planning practice that prioritizes a "desired built form as the basis for regulation, rather than predetermined categories of land uses or standard zoning districts." FBC's are guided by the concept that while uses of buildings change throughout their existence, the form of the building most often stays the same (Levine, 2006, p. 192). Elliot (2008, p. 40) views the codes as an attempt to "rebalance" the components within traditional zoning to place attention more on development form than permitted uses, and that FBC's go well beyond mixed-use (See Appendix B). In stating that "many of the great places we like to visit don't fit into site-specific boxes at all," Elliot (2008, p. 42) highlights the issues with simply separating uses in traditional zoning that attempts to standardize the area that buildings must fit into. Talen (2011, p. 529) also identifies that the level of mix that is encouraged through FBC's does not exist with traditional zoning.

The transect approach is a code within the realm of FBC's that determines regulations based on the type of location, including a range of types from rural to urban core, that are exemplified using visual graphics (Duany & Talen, 2002). Land is classified into transects to confirm that the correct building types and roads suit their individual environment (Geller, 2010, p. 46). Tachieva (2010, p. 30) describes the transect as an optional tool that "organizes structural elements according to an increasing density and complexity" within the context of the built environment. The "SmartCode" is one of the most popular types of transect-specific codes developed by DPZ that controls use according to intensity levels (Talen, 2011, p. 529). The transect ultimately attempts to restore meaningful spatial patterns through shifting regulations that are based on locational intensity (Talen, 2012, p. 185).

FBC's are comprised of a regulating plan, public space standards, building form standards, administration, and a glossary (Parolek et al., 2008, p. 15). Some codes may also include architectural standards, block standards, building type, landscaping standards, and green building standards (Parolek et al., 2008, p. 16). The regulating plan works as a key map that is different from a typical zoning map, as it displays the sites for various buildings, street types, build-to lines, and sometimes includes design features (Sitkowski & Ohm, 2006, p. 164). Public space standards encompass elements of the public sphere that includes thoroughfares and civic spaces. Building form standards are regulations that control the "configuration, features, and functions of buildings that define and shape the public realm." Lastly, administration simply involves the requirements for project application and review, and the glossary consists of definitions of more technical terminology used in the code (Parolek et al., 2008, p. 15).

FBC's may be deployed as mandatory codes, optional or parallel codes, or floating-zone codes based on the specific political environment and resources available (Rangwala, 2012, p. 37). In Columbia Pike in Virginia, FBC's are being used as parallel codes to facilitate density on the pedestrian Main Street, while making sure that it does not overwhelm the area (Dunham-Jones, 2011, p. 91). Ventura, California has adopted seven FBC's as mandatory, integrating them within existing zoning as individual chapters

(Rangwala, 2012, p. 37). A floating-zone code has been applied in North St. Lucie County, Florida to implement a plan for an agricultural area with future development planned for new villages (p. 38).

In reviewing the literature relating to FBC's, it is apparent that there is a lack of substantial information and analysis available. This is acknowledged by Parolek et al. (2008, p. 5) who state that though there is a demand for comprehensive resources, there are limited amounts of resources available and an absence of recognized standards has produced improper implementation and misinterpretation with FBC's. Because FBC's are a relatively newer tool and are not commonly engaged with in the literature, it is sometimes difficult to address questions concerning its viability. Much of the information available relating to FBC's is produced by self-identified proponents of New Urbanism, which may bring forward questions relating to bias on the subject and research outcomes produced.

Inniss (2008) declares that the proposed benefits of FBC's are outweighed by their problems, stating that it is not effective at "addressing the decline of civic life" and fails as an attempt to re-create the design of the past city. She also uses the concerns related to New Urbanism and the close connection to FBC's as another reason to oppose the codes. Talen (2011, p. 531) addresses the specific and common critiques of FBC's as "an infringement on architectural freedom and an unacceptable level of control over urban form," and the treatment of urban problems as superficial. In response, Talen reaffirms the importance of urban form in implications regarding social and environmental justice (2011, p. 532).

Support for development practices that are seen as being outside of the mainstream and that do not imitate standard design practices, such as FBC's, is limited from financial institutions and lenders, as well as local public officials (Ben-Joseph & Szold, 2005). These actors often state that most regulations are excessive and over-prescriptive, causing a lack of design and planning innovation (Ben-Joseph & Szold, 2005, p. 8). There appears to be a common theme within these works, recognizing a distinct

challenge in attempting to overcome certain elements of the inherited planning and regulatory system within North America. Further, there appears to be consensus regarding the low probability that the current regulatory system could be completely replaced with an alternative such as FBC's.

Boyer (2010) uses a quantitative multi-case study research in examining the application of FBC's in North Carolina to find that selected municipalities within the state have encountered "some but not all" of the advantages that are identified by the Form-Based Code Institute. The results display increased "compatibility and diversity" as well as improvement of public realm design; though findings are inconclusive regarding other suggested advantages that include public participation and "ease of enforcement" (Boyer, 2010). Additional studies focusing on the quantitative aspect of application of FBC's are needed in order to determine if the codes are sufficient and effective, and to what extent.

FBC's require design considerations to be fundamental in determining zoning districts, transgressing traditional zoning practices considerably. While design-focused regulations are by no means new (Talen, 2009; Geller, 2010, p. 42), it is challenging to attempt to institute these alternative kinds of regulations in a system that has held traditional zoning as the singular approach to regulation. Because FBC's "attempt to move development in a new direction," require transparency, and require shared ideals (Talen, 2009, p. 157), an ideological reform of some sort would likely need to occur within the North American regulatory environment. Evidently, FBC's are not a flawless tool and require much experimentation and thorough analysis of their outcomes to advance. It may also be argued in an additional perspective that the opposition that FBC's face suggests a strong aversion to change in the planning community. Practitioners who have been applying traditional zoning methods for several years may not be as open to embracing new techniques and systems that require substantial effort in rethinking local regulations.

FBC's are able to work within the current system of zoning on a site-specific basis, as an overlay district, or wherever they might appear to be most suitable. The literature has generally suggested that implementation of FBC's on a large-scale and as a sole replacement for traditional methods may not be feasible, but this does not mean that they cannot be integrated in some way in the present framework if it is appropriate. While traditional zoning addressed what appeared to be relevant concerns at the time, it is questionable whether this method alone is still pertinent to the modern land-use regulatory environment. FBC's offer choice in zoning and should be viewed as an option in the toolbox available to both practitioners and municipalities. The literature reveals that these codes undoubtedly challenge conventions in zoning and require those involved in these dialogues to seriously rethink the effects of current land-use regulations. Further research may contribute in systematically examining the applicability of alternative coding systems within a traditional zoning framework and analyzing the outcomes of those that are integrated. This research attempts to survey the viability of these codes on a much smaller scale.

Positioning New Urbanism and Smart Growth

The literature and dialogue regarding both New Urbanism and Smart Growth is littered with extensive criticism. These two concepts are necessary to engage with in discussions of retrofits and FBCs and they are an important component in attempting to understand the lack of proliferation of FBCs, in particular. Terminology regarding both movements is explored along with a brief background on their evolution and history. The Canadian experience regarding New Urbanism is reviewed providing necessary foundations for the case studies within this paper. This review of the literature will conclude with an attempt to position the consistent criticism that these two movements face, as well as provide brief commentary on how this ultimately affects the acceptance of retrofits and FBCs. This review is an effort in investigating the evolutions of both movements and how they are perceived in order to situate the tactics examined in this research.

New Urbanism and Smart Growth appear synonymous to many partly because of their expansive definitions interrelated with sustainable development (Jepson & Edwards, 2010, p. 433). These two terms are often used interchangeably, though there are substantial differences. New Urbanism emerged in the United States during the 1980s as an urban design movement that was initiated by desires for sustainable development heavily influenced by Kevin Lynch, Jane Jacobs and Christopher Alexander (Garde, 2004; Grant, 2006). The movement was led by architects and “physical planners,” where Smart Growth emerged primarily from environmentalists and policy planners (Knapp & Talen, 2005, p. 109).

Gordon (2003) states that New Urbanism appears to have a stronger focus on urban design and sense of community than Smart Growth. Marshall (2003, p. 189) identifies New Urbanism as “...an urban design package that combines neo-traditional style buildings arranged in street grids to form relatively dense, walkable mixed-use neighbourhoods.” Marshall also acknowledges the relationship and role of New Urbanism in addressing retrofitting in the context of suburbs, identifying the movement’s evolution from being primarily associated with new residential development. Skaburskis (2006, p. 234) views New Urbanism as “an alternative to sprawl” that aims to provide suburban residents with “walkable neighborhoods, attractive streetscapes, and the prospect of vital community life.”

The Congress for the New Urbanism (CNU) is the leading organization behind the movement and proponents of its core principles in the Charter for the New Urbanism. CNU does not provide a concise definition of New Urbanism, but broadly describes its main concepts and ideas in relation to the lengthy Charter of the New Urbanism itself. These general concepts include “creating enduring neighborhoods, making urbanism legal again, making connections a priority, celebrating shared spaces, reclaiming urban places,” among others (Congress for the New Urbanism, 2011).

Grant (2006) identifies the increase in popularity of New Urbanism within Canadian planning practice and research, however also reveals the lack of actually developed New Urbanist communities (2008) and the absence of “commitment” to the principles of the movement (2002; 2009). Most new suburbs in Canada still display the influence of conventional development practices, even with the growing adoption of New Urbanist methods (Grant, 2009). This may be due to Moore’s (2010, p. 112) findings stating that New Urbanism is being considered more “risky” to pursue by developers and municipalities than other forms of housing, specifically with the GTA. This is particularly relevant to the question of implementation of related policies within the context of this paper.

The high levels of acceptance in Canada appear to be due to the articulation of New Urbanist values that previously gained momentum during the 1970s (Grant, 2005, p. 171). Further, Grant states that it appeared as a sort of tangible concept for those ideas that were already being practiced by many planners and designers. Grant (2008, p. 122) states that despite New Urbanism’s identity as a minority in development models nationally and the lack of adherence to its objectives, the movement is expected to “have considerable impact on Canadian planning practice.” This conclusion proves to be questionable, as unfailing criticism of New Urbanism continues in both practice and theory and has arguably perpetuated a popular disdain for the movement regardless of its intentions. Talen (2005, p. 276) acknowledges this in a different form with the perspective of a New Urbanist, stating that practitioners and those involved in city design appear to be “uncomfortable with the optimism of New Urbanism.” Talen also states that those practitioners seem unwilling to accept progressive urbanism, which is what she believes New Urbanism to be.

Evidently, follow-up studies evaluating New Urbanism’s impact on planning practice in both Canada and the U.S. are necessary as the next steps relating to this aspect of the literature. The New Urbanism has only more recently found a receptive audience in Canada, with the 1990s identified as the general start of acceptance and engagement with the movement (Grant, 2006, p. 157). Overall,

receptivity of New Urbanism in Canada, as opposed to the U.S., is seen to be greater when examining the literature. Arguments relating to higher densities than the U.S. (Everett-Greene, 1997), the appearance of an “easier” planning environment (Grant, 2006, p. 151), and Andres Duany himself claiming a high degree of penetration for New Urbanism implementation in Canada (Wight 1995) have all contributed to this interest in New Urbanism in Canada. Duany has also stated that Duany Plater-Zyberk’s development of Cornell in Markham is “absolutely flawless” and describes it as his “flagship project,” while at the same time criticizing the formative Seaside development as a failure (Grant, 2006, p. 151). Clearly, Duany views the Canadian planning landscape as ideal for implementing the vision of New Urbanism more than the U.S., and rightfully so, as the projects undertaken in Markham are North American’s largest concentration of plans that have been prepared with New Urbanist design tactics (Gordon & Vipond, 2005, p. 42).

Pyatok (2002) identifies New Urbanism as a servant of private developers who “repackage suburban sprawl in more seductive “urbane” clothing.” For Grant, Manuel and Joudrey (1996) who approach the concept from an ecological lens, New Urbanism does not appropriately address the intricacies of environmental ruin. Grant (2006, p. 191) also argues that sustainability is viewed within the movement as a design problem, and that ecological concerns appear “shallow or undimensional.” Godschalk (2004, p. 7) describes the Charter for CNU as a “design manifesto” with little to no focus on environmental sustainability. New Urbanism has also been simply deemed a new arrangement of sprawl by some (Leung, 1995; Lehrer & Milgron, 1996; Krieger, 1998). Others have viewed it as exceptionally ordered, with reference to design (Harvey, 1997; Sorkin, 1998). Moore (2010, p. 113) states that the “fragmentation” that is concerned within the boundaries of New Urbanism has reinforced and blurred the urban-suburban divide, specifically within the GTA. These criticisms ultimately represent only a modest fraction of the literature regarding New Urbanism in this context.

Smart Growth is described as “a family of related policies with similar goals that have evolved over time” by Ingram et al. (2009). They go on to determine that the term itself refers to the movement itself and those newer policies that are deemed “land use control” and “growth management.” Smart Growth arrived later than New Urbanism during the 1990s, though follows similar principles relating to emphasis on environment using growth management strategies. The concept was primarily initiated by the U.S. Environmental Protection Agency (EPA) in 1995 in response to the negative impacts related to low-density sprawling patterns in residential areas (City of St. Albert, n.d.). The EPA defines Smart Growth as “development that serves the economy, the community, and the environment. It changes the terms of the development debate away from the traditional growth/no growth question to ‘how and where should new development should be accommodated?’” (Environmental Protection Agency, 2001). A provincial NGO established in 1999, Smart Growth BC modestly describes the concept as “land-use and development practices that enhance the quality of life in communities, preserve the natural environment, and save money over time.” For Daniels (2001), Smart Growth encourages a public-private approach in managing growth and is described as a kind of balanced approach. Definitions of the concept collectively appear vague, suggesting a basis for the difficult in differentiating Smart Growth from New Urbanism.

Smart Growth appears to have emerged more rapidly in planning theory and practice in Canada than New Urbanism. Despite this, a study on Smart Growth in Canada by CMHC (2005) emphasized the significant gap between articulated growth management policies in planning documents in six regions and the actual developments produced, stating that despite progress in policy goals, “performance is lagging behind considerably.” This conclusion mirror’s Grant’s (2006) observation regarding New Urbanism in Canadian theory and practice, as previously examined. British Columbia was one of the earliest provinces to develop a Smart Growth NGO, and has also introduced an intensive program in four local communities called “Smart Growth on the Ground” that encourages local communities to produce

more developments and implement their visions of Smart Growth as they define them (Smart Growth BC, 2009). Smart Growth may be more receptive in Canadian planning than New Urbanism due to the fact that New Urbanism is heavily rooted in American city planning relating to the Progressive Era of town planning, the Garden City concept, and Mumford's regionalism (Knapp & Talen, 2005, p. 109), where Smart Growth has continually revolved around policy and environmental concerns.

Criticism relating to Smart Growth appears to be comparable to that of New Urbanism, though arguably spans a wider variety of topics. O'Toole (2001) argues that Smart Growth restrictions have decreased housing affordability, specifically in the City of Portland, as well as deeming advocates as knowing best how people should live. The latter sentiment is often used by opponents concerned with individual property rights or those opposed to the elements and values of urbanism. Handy (2005) finds that claims made by Smart Growth proponents, specifically regarding transportation and land-use, are still generally unanswered within the research and that attempting to predict the outcomes of these policies is limited. Ingram et al. (2009) also state that overall there has been a lack of systematic assessment of Smart Growth principles in effectiveness and consequences, and therefore attempt to measure performance of four statewide programs. The evaluation undertaken appears to be one of the few attempts at assessing the principles of the movement, as exposed in an investigation into similar literature. Jepson and Edwards (2010, p. 419) identify that several studies have been undertaken in evaluating the degree in which cities and counties are adopting plans that have components that are consistent with Smart Growth. For Song (2005), Smart Growth has not yet breached the limits of non-traditional facets of planning that facilitates mixed-uses and more regional accessibility. Support for Smart Growth is seen as being "far from universal" by Knapp and Talen (2005, p. 108), though they also claim that the movement has seen a general rapid rise in popularity.

The literature on both movements has ultimately suggested that New Urbanism and Smart Growth fall short of implementing ideas of sustainability (Grant, 2006; Ingram et al., 2009; Sartori,

Moore & Knaap, 2011). What this likely means for suburban retrofits and FBC's is an increased lack of acceptance or willingness to consider the potential of either tactic. New Urbanism often advocates for FBC's as an alternative approach to zoning due to the movement's emphasis on design, and this association appears to have a negative effect on dialogue regarding FBC's. In order to attempt to change perceptions of these movements, it is necessary to move beyond discussions of these initially developed communities that commonly absorb most criticism, such as Seaside and Celebration, Florida.

It is important to note that opposition to both Smart Growth and New Urbanism is often led by those concerned with "property rights, home building, the automobile industry and agriculture" (Knapp & Talen, 2005, p. 108). This type of opposition goes beyond these movements and is part of a cultural divide that suggests a general disdain for most elements relating to urbanism. This tension in cultural divide is identified by Talen (2005) as a basis for a large amount of the opposition to New Urbanism. Similarly, Ellis (2002) divides critiques of New Urbanism into empirical performance, ideological and cultural affinities, and aesthetic quality. He posits that there is a lack of evidence in certain cases to make judgments, and that these attacks on New Urbanism are "unconvincing" (Ellis, 2002).

If New Urbanism and Smart Growth are able to distinguish themselves from each other and reiterate their respective priorities, New Urbanism and design, Smart Growth and environmentalism, criticism will likely not be addressed simultaneously and sometimes broadly to both as it currently appears to be. New Urbanism, in particular, might work to emphasize its developments and communities that are more recent and seen as more successful, as opposed to continuing debates and discussion on earlier projects such as Seaside. The commonly criticized Seaside, Celebration, and Kentlands developments are only a small percentage of New Urbanist communities, and the movement could attempt to move beyond these debates to highlight the successes in infill, redevelopment, reuse, among others.

It may be argued that both movements are somewhat misconstrued, as it is difficult to understand how such hostility and debate surrounds movements that at their core attempt to improve livability, sustainability and suburban character of North American communities. The principles within the Charter of the New Urbanism have essentially been commonly accepted or agreed upon within current planning theory and practice without any realization, though because the document is New Urbanist it may automatically be dismissed because of its associations with the movement. It is arguably now common practice for planners and architects to condescend or criticize anything related to, or branded as, New Urbanism or Smart Growth. Blind criticism from professionals coupled with the previously mentioned condemnation from an ideological and cultural divide reveals the true confusion embedded in dialogues of both movements.

Among both high amounts of criticism and varied support regarding these movements, it is evident that new research is necessary to continue dialogue on these concepts and also categorically evaluate the outcomes of these developments as they continue to occur. Converting sustainable development concepts into actual principles or development standards that produces tangible 'on the ground' results continues to be a significant challenge in planning (Godschalk, 2004). New Urbanism and Smart Growth are both approaches that have arisen in an attempt to bridge this gap and produce these results (Jepson & Edwards, 2010, p. 418). Despite this, sustainable development is innately a highly complex concept and that is what these movements have based their development strategies on (p. 434). In response, this paper attempts to engage with these movements through their relationship to retrofits and FBC's in the context of the case studies.

III – Setting the Stage

Best Practices of Form-Based Codes

The following examples identify three cities in Canada and the United States that have implemented FBC's as either mandatory or optional to regulate land-use and development, shedding

light on the flexibility of these codes at a variety of scales. Miami applies a FBC on a city-wide scale, while St Albert maintains a site specific approach, and Arlington focuses on the scale of the corridor. It is important to note that significant challenges were faced by all three cities implementing these new systems. The two main challenges that were present in each case were learning to adapt the FBC model within existing policies as well as dealing with strong opposition from property owners and stakeholders (City of Miami, 2011; Burdette, 2004; Chamis, 2000; Bergum, 2009).

St Albert, Alberta

St Albert is a suburb located northwest of Edmonton with a population of approximately 62,000 residents (City of St. Albert, n.d). The city has maintained a traditional Euclidean zoning model within its by-law, but began the development of a FBC in 2009 to address development patterns that were no longer desired (City of St. Albert, 2009). St Albert's FBC aims to facilitate and support increased densities and mixed-uses in particular areas, encourage transit use and reduce car dependency, provide amenities and services closer to where residents live and work, and create a safe pedestrian environment (City of St Albert 2009; Bergum, 2009). The first draft of the code was produced in April 2009 and identified four zones: Neighbourhood Activity Centre, Transit-Oriented Development, Large Format Commercial, and Form-Based Business Park. The code also included regulations for building types, parking, and environment and climate. This code is currently utilized in a hybrid format, where it is incorporated as a stand-alone section within the existing by-law and is only applied to specific areas (City of St Albert, 2009). Applying the code in a hybrid way has allowed St Albert to address legislative challenges related to implementation of a new regulatory framework and encourages development to be consistent with Smart Growth objectives (City of St Albert, 2009). St. Albert's FBC is an example that is especially relevant to this research, as it is both site-specific and within a Canadian context.

Arlington, Virginia (Columbus Pike)

Arlington County is a suburb located across from Washington, DC that has experienced a steady population growth with approximately 190,000 residents (Burdette, 2004; Dover, Kohl & Partners, n.d; Chamis, 2000; Madden & Spikowski, 2006). Columbus Pike is the 5.6 km main corridor within the suburb, which has had issues with maintaining new development due to restrictions in the Zoning By-law. Challenges relating to excess parking and commercial strip malls have also been a major concern relating to unsustainable development (Burdette, 2004). In February 2003, the “Columbus Pike Special Revitalization District Master Plan and Form-based Code” was adopted as part of a focus on the revitalization of the corridor (Burdette, 2004; Dover Kohl n.d; Arlington County, n.d). The plan and code reduce maximum densities and building heights in an attempt to increase densities and mixed-uses to transform the corridor into a more walkable main street.

This code is implemented as an optional overlay within the existing zoning of Columbus Pike with incentives for developers offered by Arlington County, such as density bonusing. While encouraging investment in public buildings and structures has been a main goal, the code also undertook a study to develop policies for the development of affordable housing stock along the corridor which will be supported by increased transit upgrades and options (Arlington County, n.d; Dover, Kohl & Partners, n.d). Though utilizing FBCs in an overlay fashion can often be more difficult to adapt to an existing framework, Columbus Pike has had success using the code in this way to manage growth and to increase the quality of the public realm along the strip.

Miami, Florida

The City of Miami is the first American city to utilize FBCs as its principal regulatory tool, previously following standard Euclidean zoning regulations (Nairn, 2009; City of Miami, 2011). Under the traditional zoning framework, Miami had scarce amounts of transit, excessive parking, an incoherent public realm, and a clear disconnect between the densities of its downtown and residential

neighbourhoods (Nairn, 2009). Downtown Miami's high density was the result of an expanding economic base that spurred both significant redevelopment and new development where other neighbourhoods outside of the immediate downtown remained low density, revealing inconsistencies within the Zoning By-law (Parolek et al., 2008).

The Miami 21 FBC was initially developed in 2005 by DPZ as a response to these challenges and to ultimately replace the existing by-law (Parolek et al., 2008; DPZ, n.d). Some of the main goals of Miami 21 were to encourage infill development, create connections between the public and private realm, produce complete communities, create mixed-use and transit-oriented main streets, and remove the overwhelming presence of parking (City of Miami, 2008). The code was implemented city-wide in May of 2010 as a mandatory and fully-integrated code (Parolek et al., 2008; Rabin, 2010; City of Miami, 2011). Miami 21's effectiveness can be quantified through the reduction in the number of use zone types from 360 to 46 as a result of transect principles being applied, as well as in the amount of zoning amendments in the city (Parolek et al., 2008; City of Miami, 2011). This code has been one of the most popular models of applying a FBC city-wide, and has been touted as proof that FBCs can be successful on a large scale in replacing traditional zoning (City of Miami 2011; DPZ, n.d).

Utilizing the FBC Framework in the GTA

In light of the discussion on North American best practices above, this next section will particularly focus on the city region as the scale of analysis by examining two cases within the GTA that display the influence of the FBC framework. These cases identify the selective use of elements of FBCs, which I argue are intrinsically built upon form-based regulatory ideas, though they are not necessarily identified formally as FBCs.

Mississauga's Downtown 21 Plan

The City of Mississauga has been a regional leader in experimenting with form-based guidelines and applying elements of the FBC approach, and have been able to use FBCs in a planning framework

that has significantly contributed to the character of their downtown.² After completing the city's Strategic Plan in 2008 and preparing to launch the Downtown 21 Master Plan, planners considered taking a different approach in an attempt to mitigate the "loose" planning framework of the downtown. There appeared to be what is described by Steven Bell, Manager of the Downtown Collaborative, as a lack of direction in the planning framework, as well as many "gaps" in the city's Official Plan and the urban design. As a result, workshops were held for planning staff and other departments under the leadership of the Form-Based Codes Institute in order to introduce FBCs. Additional training pursued by Bell and other staff followed, leading to the influence of the FBC approach on the Downtown 21 Plan.

The city uses what Bell describes as a "design-based approach" or "design-based code format." Bell states that staff hesitated to use the term "form-based code" in its entirety, due to reservations relating to the new language and the way it might be perceived. It was ultimately suggested that use of the term would imply a New Urbanist approach to planning, which was not desired. The downtown uses an overarching structure providing more specific guidelines and direction for elements such as where loading may occur on certain streets, and where front doors must be on buildings as opposed to other locations. Bell states that it was necessary for Mississauga to experiment with FBCs as the city is attempting to deliver a significant amount of certainty and predictability to create a high-quality public realm and FBCs are tailored to directly address these needs.

The city has experienced increased discussion relating to the quality of the public realm which has emerged through the planning process as many citizens expressed desires for walkable places. These concerns brought forward questions of how development interfaces with the public sidewalk in order to ensure a high-quality public realm and the management of this through the response of buildings to the streets and open spaces. Extending this approach to other areas of the city appears to

² The following section relies upon responses from interview participant Steven Bell unless cited otherwise. The information is paraphrased or indicated as direct quotations.

be a strong possibility, as policy language was included in the Official Plan that allows the use of form-based design or coding to other special character areas. Bell considers areas such as Port Credit, Cooksville, and some historic villages as potential areas that could perhaps benefit from this approach as they face increasing growth pressures. There appears to be little hesitation in drawing on form-based approaches as part of tools for implementation, despite avoidance of the term “form-based code” itself.

North Oakville Zoning By-law

Oakville has taken steps to implement community visions and goals within the North Oakville Secondary Plan related to mixed-uses and live-work communities using a form-based approach.³ The Zoning By-law for North Oakville is focused on physical form and the relationship between buildings and the street, which is an essential element of FBCs. This comprehensive by-law applies to all properties in North Oakville that are north of Dundas Street and south of Highway 407 (Town of Oakville, n.d.). The by-law was approached from its inception as a form-based approach to zoning in the greenfield area of North Oakville, though is not a “completely pure” FBC. Liz Howson, Principal at Macaulay Shiomi Howson—a planning firm in the GTA—states that the implementation strategy was at the forefront of all plans and guidelines relating to the area, such as the North Urban Area Secondary Plan, urban design guidelines, and sustainability guidelines. Howson highlights the importance placed by the town on ultimately seeing what was planned on the ground. A key part of this process was not relying entirely on the Secondary Plan, as it is not “sufficient” and requires a strong implementation strategy.

The by-law was “overly, not covertly, an attempt at form-based zoning,” which Howson stated was necessary to introduce as North Oakville was intended to be a New Urbanist community. In addition to the North Oakville Zoning By-law, the town is also redesigning their main by-law through a process entitled InZone. Howson states that Oakville has been known for undertaking open discussions

³ The following section relies upon responses from interview participant Liz Howson unless cited otherwise. The information is paraphrased or indicated as direct quotations.

regarding different approaches to zoning and suggests a desire for exploring more innovative regulatory tools. In order to initiate these kinds of ventures, Howson states that at a minimum it requires the leadership and persistence of an individual to begin to bring these concepts forward and present them as viable options for regulation. The development of the North Oakville Zoning By-law reveals the growing experimentation of FBC tactics within the GTA and the ability to set key precedents in the region for other municipalities to potentially follow.

The GTA Context, the Fringe, and Suburban Politics

Greater Toronto Area suburbs contain the majority share of population and job growth within the Greater Golden Horseshoe region (Hertel & Keil, 2013, p. 2) and with a projected population increase of 9.2 million residents by 2036, these areas will continue to be the fastest growing in the province (Ontario Ministry of Finance, 2012). The rapid pace of growth that the GTA is experiencing is especially relevant to debates and discussions about sprawling development patterns and how they might be mitigated. This research identifies three municipalities within the GTA and the Regional Municipality of York that are identified as particularly significant in this discussion of regional growth: Vaughan, Richmond Hill, and Markham. These municipalities are geographically noteworthy, spanning the relative border along the Northern end of Toronto which provides an inherently close relationship to the Metro area in a multitude of ways (See Figure 3.1). Redirecting this fast-paced growth towards retrofitting options or integrating FBCs to encourage density is an approach that may be effectively introduced on a site-specific basis in these municipalities.

These three municipalities are identified within the context of this paper as fringe suburbs. These are suburbs which I define as abutting a metropolitan centre, either directly sharing boundaries or in relatively close proximity to them. Applying this definition within the GTA, Mississauga, Brampton, Ajax, and Pickering can also be considered fringe suburbs. While the term “fringe” has been previously addressed and utilized in relevant literature, it has not explicitly found consensus in a definition and its

specific usage has varied between authors (Dijk, 2009; Klausen & Røe, 2012; Keil & Young, 2009; Grant & Carson, 2008). The definition of the “fringe suburb” identified within this research collectively draws from this literature in generating the term.

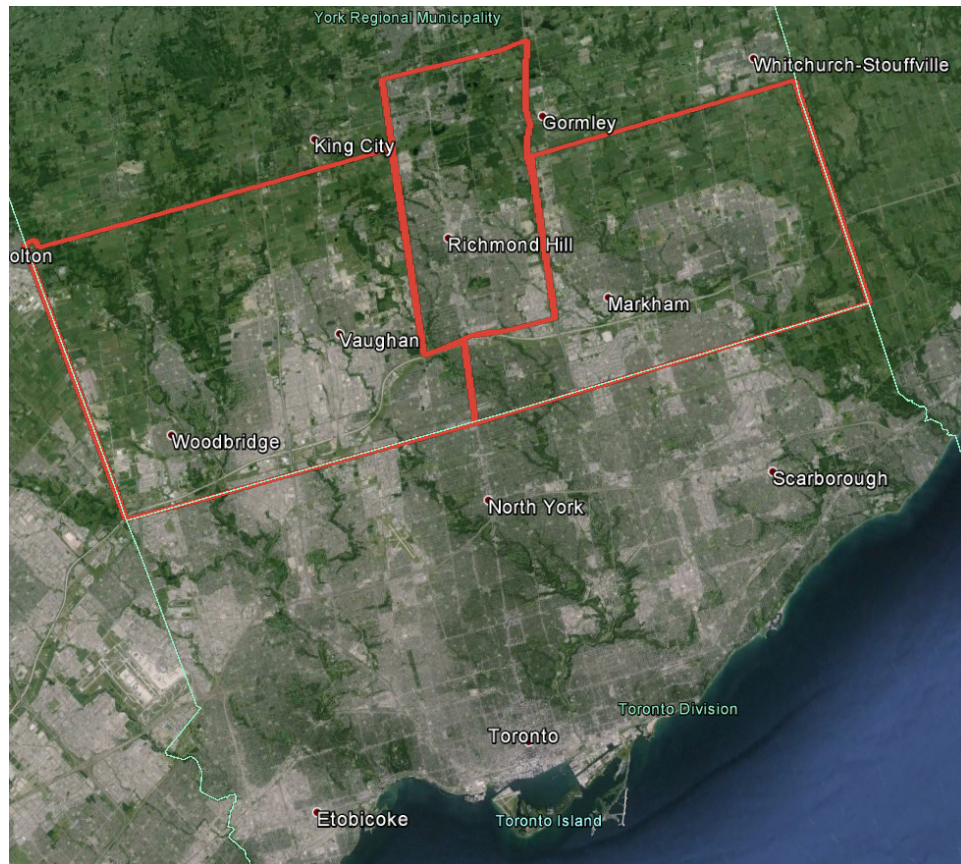


Figure 3.1: Map of locations of Vaughan, Richmond Hill, and Markham relative to the City of Toronto. Source: Google Earth, 2014.

While there have been several previous attempts at defining and conceptualizing specific kinds of suburban areas including edge cities, technoburbs, ethnoburbs, and in-between cities, these terms do not appear to appropriately characterize the areas examined in this research (Garreau, 1991; Fishman, 1987; Li, 1998; Keil & Young, 2009). In identifying the three municipalities as fringe suburbs, this research hopes to highlight a unique perspective of these places as highly complex in present and emerging land-use patterns (Figure 3.2). These areas have a multitude of needs, such as mobility and access that are often overlooked in being viewed as the classic periphery location reliant on the central

city. These spaces are also usually seen as somewhat irrelevant in the context of the metropolitan region, thus leading to a low priority on the urban agenda.

Young and Keil (2010) describe Sieverts' (2003) in-between city as a new socio-spatial urban landscape that surrounds city regions and acts as new urban morphology containing a large proportion of metropolitan populations. This concept parallels the aspects of the fringe suburb described here, excluding geographical aspects, and also contains similar views of suburban morphology as a lens described previously in this review. Scale and topography, as approaches in dissecting the complexity of Young and Keil's version of the in-between city are similarly addressed in this research.

While there are many opportunities for growth in the areas closer to the Metro boundaries, these municipalities face challenges and conflicts primarily in their northernmost regions as developers appear to believe they are constrained in land supply due to the protection of sprawl onto the Greenbelt as per the Growth Plan for the Greater Golden Horseshoe (Allen & Campsie, 2013; Places to Grow Act, 2005, S.O. 2005, c. 13). Because these municipalities do have increasingly limited amounts of developable land available for sprawling patterns that were previously possible, it is imperative that strategic densification encouraged by the Growth Plan is pursued through a variety of innovative strategies.

Proximity to the Metro area means that fringe suburbs often benefit from Toronto's infrastructure, including its transit system. Capitalizing on existing and planned transit connections, these suburbs are able to take advantage of the city's infrastructure investments and use them as leverage for growth within their own municipality. Additionally, the sheer influence of the Toronto regime in facilitating provincial and federal responsiveness to the city's urban agenda often produces direct benefits for municipalities outside of the central city. Many policy developments that aid these municipalities are usually the result of the advocacy of this Toronto regime (Good, 2009, p. 268).

However, these benefits appear to be collected as nothing more than the scant remains of the investments of Toronto and they are often not sufficient in fully addressing the needs of these areas. It is necessary to shift towards a recognition of these spaces as relevant and important in the metropolitan region, and not just as the region's second-hand municipalities that are forced to accept spillover benefits. The benefits gained in this way are arguably ineffective in working towards a truly operative politics that considers the role of a municipality in relation to the entire region.

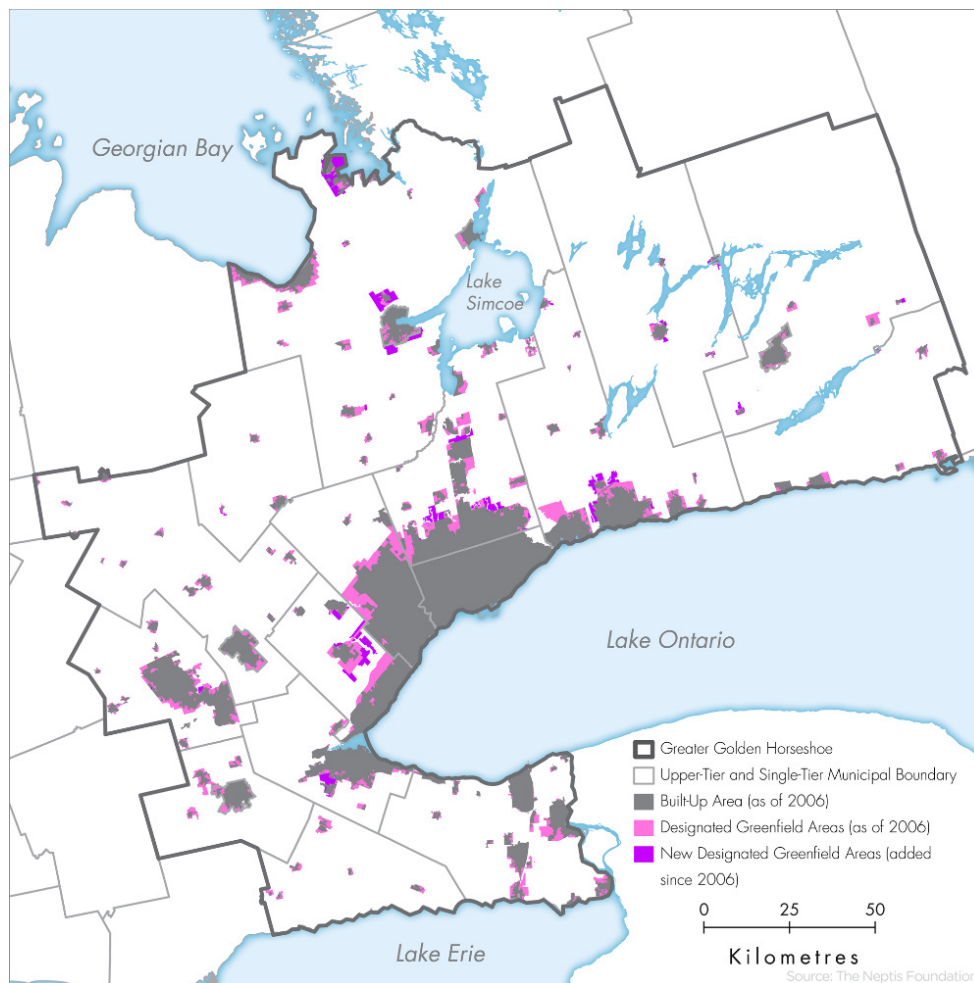


Figure 3.2: York Region contains a diverse mixture of built-up areas, designated greenfield areas, and new designated greenfield areas in the context of land labelled for growth in the Greater Golden Horseshoe. Source: The Neptis Foundation, 2013.

Suburbs have become “new arenas for forming and contesting politics, modes of governance,” similar to their city centre counterparts (Hertel & Keil, 2013, p. 2). One case that exemplifies this phenomenon relevant to the municipalities within this research is the development pressures and

political battles surrounding the Oak Ridges Moraine, specifically attracting heavy media attention from 1999 to the early 2000s. Urban development encroachments on this environmentally significant landform, of which 65% is located within the GTA (Hanna & Webber, 2010, p. 173), prompted regional suburban protest and organization.

Developers attempted to construct large subdivisions on a new portion of the moraine in Richmond Hill in early 2000, arguing that it was not a fragile environment and that housing could co-exist with the water and wildlife resources. Residents articulated their claims for conservation and worked to protect their amenity spaces being threatened by sprawl, and Council later moved to prevent development from occurring in the area (Gilbert et al., 2005, p. 384). Citizen mobilization and environmental groups played an integral role during the campaign in 2001, leading to the enactment of the *Oak Ridges Moraine Conservation Act* and the 2002 *Oak Ridges Moraine Conservation Plan* which created a greenbelt and adopted progressive enforcement of the Growth Plan (Searle & Filion, 2011, p. 1428).

As the Greenbelt surrounds one of Canada's fastest growing areas with extremely high pressure for development in close proximity, significant conflicts between stakeholders within the region will continue. The debates surrounding conservation, urbanization, and resource extraction in the moraine all illustrate major political challenges in the GTA which suggest the need for regional action and policies. Government mandate requiring regional coordination of local land uses can be seen as a strong factor in mitigating sprawl. Development pressures on the moraine have been a catalyst for bottom-up activism and mobilization in pursuing policy changes within the province (Hanna & Webber, 2010). This type of activism is vital in continuing to implement policy within the suburbs GTA that supports sustainable kinds of development patterns and suggests the need for a 'relational politics,' as it is apparent that Canadian suburbs do not currently function as isolated units that are separated from the city (Young & Keil, 2010, p. 94). Coordination of policy-making and service delivery is an issue that is not

being appropriately addressed in the broader region of the GTA (Sancton & Young, 2009, p. 29). A regional perspective serves as one of the underpinnings of the case studies explored in this research.

Municipality Profiles and Policy Overview

Markham

The Canadian New Urbanist Frontier

Markham's past and continued pursuit of New Urbanist design-based development principles distinguishes it from many other Canadian municipalities where there are very few examples of development on the ground that is consistent with New Urbanism. There is an overarching New Urbanist development philosophy that is becoming increasingly prominent when evaluating this city's character and identity within a planning context, specifically with reference to greenfield expansion. It was during the early 1990s that New Urbanism emerged as a noticeable development philosophy for the then town (Gordon & Vipond, 2005, p. 42). In 1991, a New Urbanist approach was first adopted for the Cornell community with the original Cornell Secondary Plan approved by York Region in 1995 along with a New Urbanist Zoning By-law in 1997, both produced to implement the philosophy (York Region Planning and Economic Development Committee, 2011; Langlois, 2006, p. 25).

The Cornell Secondary Plan explicitly emphasizes the planning of community "based on the principles of New Urbanism developed by the Congress of New Urbanism to guide public policy, development practice, urban planning and design" (Town of Markham, 2007, p. 38), which is noteworthy for several reasons. When the then town conducted an "innovative long-range environmental planning study" between 1989 and 1993 that would set the foundations for Cornell and other New Urbanist developments focusing on environmental guidelines for greenfield development, this was viewed as quite a rare practice within Canadian suburbs (Gordon & Tamminga, 2002, p. 323). The commitment to New Urbanism and the mix of uses occurred prior to provincial Smart Growth-related policies that encouraged mixed-use development (Grant & Perrott, 2009, p. 275), which is now

an expected recommendation. However serving the New Urbanism market generally requires more time invested, increased costs, and risks relating to amendments of regulations such as Zoning By-laws or building codes for developers. Thus challenging conventional Zoning By-laws and the suburban development prototype would require strong municipal government support as well as forward-thinking planning policies. As was the case for Markham, embarking on the Cornell project was especially difficult during the early 1990s as New Urbanism was still in its early stages. These developments were able to occur for a variety of reasons, including the leadership of an ambitious new planning commissioner and a mayor who was prepared to take risks (Gordon & Vipond, 2005, p. 42).

Markham's adoption of New Urbanist principles in its planning framework and subdivision approval process has led to the city having the largest concentration of New Urbanist developments in North America and has been an effective strategy in raising gross densities of residential development (Skaburskis, 2006; Perrott, 2008; Gordon & Vipond, 2005, p. 51). Markham has had 11 Secondary Plans adopted between 1994 and 1997 which incorporate New Urbanist principles—all of which were developed through comprehensive public participation processes (Skaburskis, 2006, p. 236; Gordon and Tamminga, 2002). Cornell is a significant example of the influence of New Urbanism on policies relating to greenfield development in the city and how these elements have become embedded into its planning principles. Whether or not New Urbanism has positively contributed to the overall environmental and social sustainability of the city and the broader region is questionable, as discussed in the previous chapter.

Zoning By-law Structure and Overview

Rural land was amalgamated in the northern and eastern areas of the municipality in 1995 through the adoption of Official Plan Amendment 5 (City of Markham). These existing communities incorporated into Markham each contained their own various by-laws which were maintained as independent by-laws within the city, as opposed to consolidating them. By-law 177-96 covers the Urban

Expansion Area part of Official Plan Amendment 5, which is the area of the city developed after 1996. This by-law covers the largest area of the city and is one of the most modern by-laws, though there are 46 Zoning By-laws addressing other areas of the city. These 46 individual by-laws are currently still in full force and effect with the provisions of each applying to the respective lands covered. There have been a number of “omnibus” Zoning By-laws adopted through the years that address specific issues throughout the entire city. These include regulations such as parking, decks, driveways, places of worship, among others. A consolidation exercise within the city is expected to begin in April 2014, estimated to be completed between 2017 and 2018 (T. Villella, personal communication, 2014).

Official Plan Priorities and Principles

The adoption of New Urbanist principles in Markham previously discussed is evident in many aspects of the city’s Official Plan. Planners in the city have made distinct connections between the mix in urban form relevant to New Urbanism and their goals of social diversity. Official Plan policies have continually advocated for varying types of place diversity in the city, assuming that place diversity will ultimately lead to social diversity that represents more authentic and economically prosperous neighborhoods (Grant & Perrott, 2009, p. 278). While New Urbanism is sometimes promoted as a way to strengthen social sustainability and equity to attract residents, some forms of this kind of New Urbanism fail to accomplish these goals (Trudeau, 2013).

The Official Plan falls under the city’s six strategic priorities entitled “Building Markham’s Future Together.” The identified vision for the plan views Markham as “a strong, vibrant and productive city with its residents, businesses and workers leading the way together to liveable neighbourhoods, healthy people and continuing prosperity” (City of Markham, 2013, p. 2-4). The four major themes that act as the foundation for this vision include Protecting the Natural Environment, Building Complete Communities, Increasing Mobility Options, and Maintaining a Vibrant and Competitive Economy. In stating that “...Markham’s planning decisions have not been about whether to grow, but rather how to

grow,” the tone of the official plan and general planning attitude quickly becomes apparent (City of Markham 2013). Although the Official Plan has environmental and social sustainability undertones, it is contained in a discourse that promotes economic competitiveness and a market-led approach to planning for growth.

Richmond Hill

Environmental Conservation and Residential Growth Management

Richmond Hill maintains a unique identity within York Region. It is a municipality that no longer contains many of the vast open space greenfield areas to accommodate future growth which other nearby municipalities still possess (R3, personal communication, December 4, 2013)(See Figure 3.3). The large portion of the Oak Ridges Moraine and other existing natural features that are contained in the northern end of the town demand protection or restoration that makes the town’s growth pressure somewhat more problematic. For this reason, Richmond Hill requires an increased focus on higher levels of density in existing urbanized areas, arguably more so than the other two municipalities contained within this case study which are significantly larger in size.

There is a legacy of contention regarding development resistance primarily related to the ORM that has somewhat shaped the identity of the town within a planning context; this emerged during the 1980s with one of the first debates between land-use development and citizen mobilization regarding a high density development (Gilbert, Wekerle & Sandberg, 2005, p. 383). Developments within the last 10 to 15 years have placed the town at the “epicenter of the tensions between suburban sprawl and environmental conservation.” It is important to note that the apparent environmental activism occurring in the town related to protection of the ORM has been more about defending and upholding quality of life concerns than the more common “livelihood struggles” that are prevalent in environmental conservation debates (Gilbert et al., 2005, p. 383). Environmental conservation has continually been used as a platform for maintaining lifestyles related to amenity spaces in the town,

revealing the contradictory claims surrounding land use disputes in the outer suburbs and rural-urban fringe zones of the GTA.

Despite the passing of the *Oak Ridges Moraine Conservation Plan* in 2001 and *The Greenbelt Plan* in 2005, development in the form of new transportation, infrastructure and utility corridors are still permissible in Natural Core and Natural Linkage Areas if there appears to be no practical alternative (Wekerle et al., 2007, p. 28). Development in the town continued to occur during the early 2000s regardless of the “rhetoric of preserving the Moraine,” as developers were given automatic right to construct thousands of homes on a portion of the ORM that was supposedly designated as a protected area through a zoning order from the Minister of Municipal Affairs and Housing (Gilbert et al., 2005, p. 386). The large amounts of actual development on the Moraine related to resource, settlement and infrastructure reveals the decidedly permissive development permissions and challenges the presentation of the ORM as a kind of vast and untouched area (Sandberg, Wekerle, & Gilbert, 2013, p. 13). It is evident that contradiction exists when considering the province’s environmental conservation plans, intertwined and at times competing with its economic growth agenda, as seen in *The Places To Grow Act* (2005).

The town has experienced “persistent vilification” in local newspapers and the media over the years relating to the debates surrounding moraine conversation (Gilbert et al., 2005, p. 384). This history of intense media scrutiny appears to have noticeably affected some of the attitudes and persona of the planning and design department in relation to the responses to residents’ activism or opposition. R3 continually worked to emphasize the critical importance of the public engagement process and the efforts of the town in prioritizing transparency as a necessary way to avoid significant conflicts. It was also apparent that R3 was generally reticent when asked about conflict and opposition to intensification, reiterating the importance of consultation likely related to the town’s history of extreme surveillance within the media.

Both Richmond Hill and Markham have historically been viewed by developers as places with “good” and seemingly productive development charge by-laws, as these jurisdictions have utilized an area-specific approval to charges. Through area-specific by-laws, developers are able to avoid a significant amount of political control over their activities and pursue projects on their own timeline; large developers within York Region have been known for their political clout over local councils (Tomalty & Skaburskis, 2003). This influence is especially relevant to the debates regarding development on the ORM and provides insight into how these developers are often able to find ways around development barriers on or near natural areas. Close relationships between the development industry and local government in the town are highlighted through the continual debate regarding ORM preservation (Gilbert et al., 2005, p. 384).

Zoning By-law Structure and Overview

Similar to Markham, there is no comprehensive Zoning By-law for Richmond Hill. The town is currently maintaining the use of by-laws which existed in other municipalities that were amalgamated to form Richmond Hill when York Region was created. There are approximately 40 stand-alone by-laws, each with their own volumes of amendments. Currently underway is a process of updating and evolving the Zoning By-laws through passing town-wide by-laws to harmonize certain standards and definitions; this process began in 2010. The consolidation of Zoning By-laws are planned to follow the final approval of the town’s newest Official Plan (C. MacKenzie, personal communication, 2014). One of the more notable of these stand-alone Zoning By-laws is the Oak Ridges Moraine Zoning By-law, which is a comprehensive ZBL prohibiting any use of land or erection of buildings that do not adhere to the purposes set out in *the Oak Ridges Moraine Conservation Act* (Richmond Hill By-law No. -04, n.d.).

Official Plan Priorities and Principles

The town identifies its current transformation from suburban to urban as a main tenet of its Official Plan's vision statement. It also identifies the need to develop and build what is deemed as "a new kind of urban," which appears to be outlined as method of intensification that maintains the town's identity. Much of the language within the vision statement is somewhat more neutral than the other two municipalities in terms of embracing impending development and urbanization:

2.1, Vision Statement ... Based on the consultation that led to this vision, it is clear that Richmond Hill's location within a broader urban landscape is well understood, as is the need to plan for development that promotes transit infrastructures and investment. At the same time, there is strong desire to build a new kind of urban area that respects and enhances the Town's unique identity. (Town of Richmond Hill, 2010, p. 22)

There is what appears to be a more cautious tone within this Official Plan that reflects the apparent sensitivity of intensification by residents as suggested by R3. The town's Official Plan has been deemed "a very strong philosophical document" that was shaped through a highly intensive consultation process over the course of approximately three years (R3, personal communication, December 4, 2013). Taking into consideration the lack of greenfield areas left for development, a stronger vision statement concerning intensification would reasonably appear to be more fitting.

There are a total of five guiding principles within Richmond Hill's Official Plan: Complete Communities; Environment; Economy; Place-making; and Connectivity and Mobility. These principles appear to be significantly broader in their intent than those of Vaughan. The obvious lack of descriptiveness in the principle titles may support the previously identified attitude of cautiousness and minimalism in the Official Plan that is relevant to the apparent tension in conflict between residents and the town.

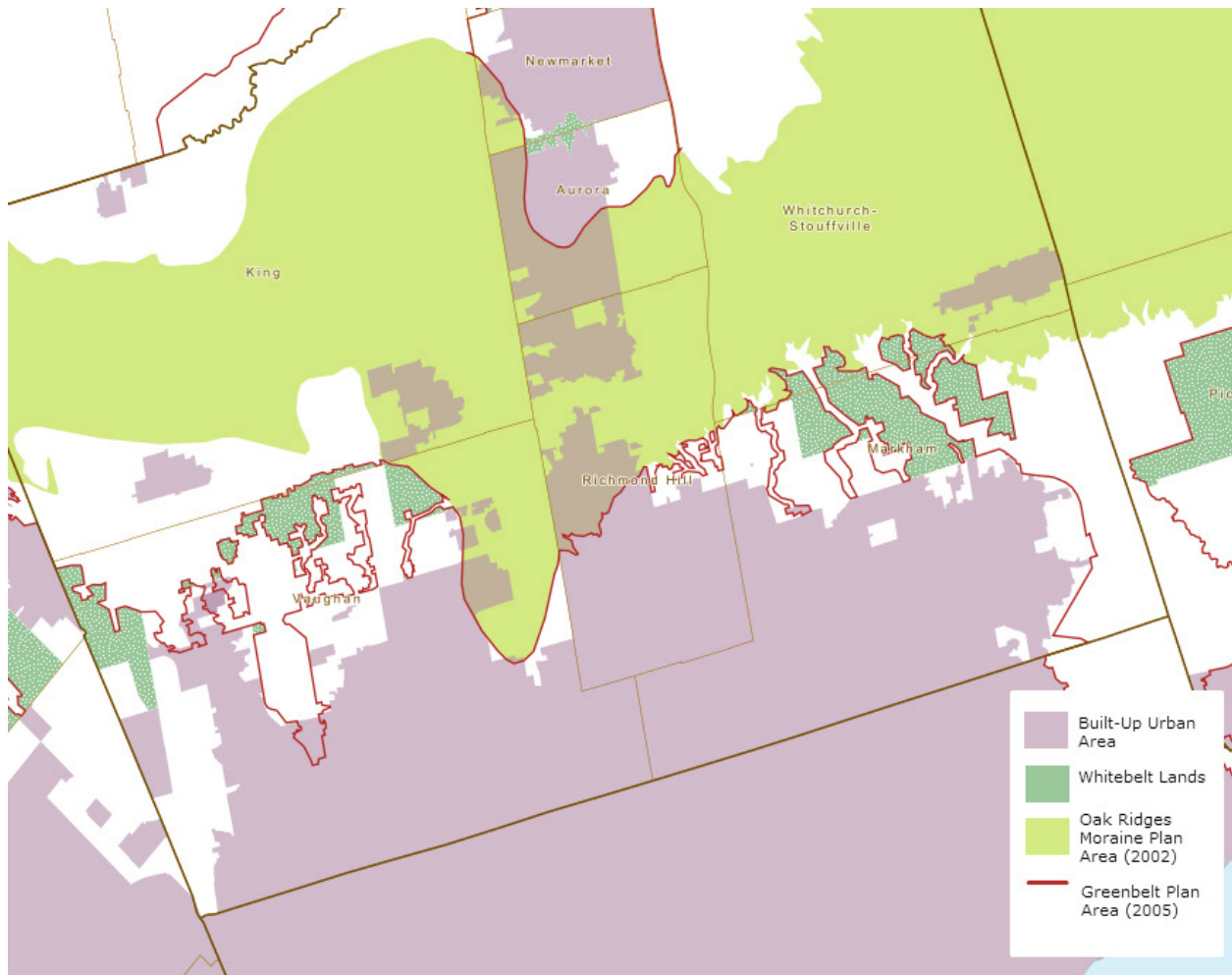


Figure 3.3: Comparative view of land potentially available for future greenfield development within each municipality. Built-up Urban Areas are an approximate view as they have expanded since 2005. Source: Neptis Geoweb 2014.

Vaughan

Emerging Mixed-use Destinations and Hubs Among Residential Stability

Near its southernmost end, Vaughan is primarily viewed as a central manufacturing and industrial area within the GTA, partly due to its strong transportation corridors coupled with competitive tax rates. Fiedler (2011, p. 76) describes this landscape as diverse and mixed-use, as industrial and infrastructural spaces play an important role as part of this built form. These employment areas account for 20% of the city's overall urban structure, along with stable residential areas at 36% and natural areas accounting for 40% (City of Vaughan, 2010). Employment areas have become the city's major sources of growth in mixed-uses and increasing strength in transit connections are increasingly becoming a

noticeable contrast to the surrounding residential neighbourhoods. Rapid development of these employment areas appears somewhat isolated and contained, and a lack of integration of transportation growth and mixed-uses within residential areas may pose a challenge in maintaining a coherent and productive urban structure in the future. The sharp division of vast swaths of employment lands and residential areas is extremely visible when observing the city's urban structure.

Similar to Markham, Vaughan has experienced a general rise in gross densities through suburban development though less than Markham's New Urbanist-based projects (Gordon & Vipond, 2005, p. 50). Vaughan also has a variety of characteristics similar to Markham including rapid population growth occurring within the last 25 to 30 years, strong transportation connections close to the Metro area, and both municipalities being approximately equivalent in size. Despite these broad parallels, Vaughan has taken a noticeably different approach to its development principles and priorities. While Markham pursued alternative methods of development beginning in the early 1990s, Vaughan upheld a seemingly standard approach for the time in expanding greenfield residential development as identified by the city's planning department:

Vaughan's existing residential neighbourhoods have been designed and built principally in response to the preferences of the marketplace and have emerged as stable environments which meet the needs of Vaughan's residents very well. Appropriate planning measures are needed to ensure that the integrity of these neighbourhoods is protected while future growth is accommodated. (Vaughan Planning Department, 1991, as quoted in Langlois, 2006, p. 39)

Stability appears as a priority in this statement, ultimately prioritizing residential stability in the form of single-detached dwellings over increases in density or intensification. There is a kind of visible market-led approach to development in Vaughan, as evident in the above statement. Current trends in housing stock reflect the dominance of the market in the city's planning versus strongly enforced principles emphasizing mix, design quality, or connectivity that is often apparent in Markham. Developers in the city have continually utilized identical row housing and semi-detached dwellings on small lots as a way of surrounding subdivisions in or around arterial roads, essentially protecting the

internal subdivision from noise or interaction with neighbouring roads and uses. Additionally, sidewalks are noticeably sparse around these types of developments and within newer subdivisions in Vaughan, including areas adjacent to arterial roads presenting significant safety issues. Using the example of dwelling type and trends is one way to uncover the underlying planning principles and identity of the city.

While Vaughan has historically maintained this conservative market-led type approach in residential areas, it is now experiencing the rapid development of mixed-use destinations and a prominent Anchor Hub in the form of the Vaughan Metropolitan Centre (VMC). Destinations, formally identified by Metrolinx as important regional activity centres or major trip generators that are not full mobility hubs, include regional shopping centres such as Vaughan Mills and nearby academic institutions such as York University which are closely integrated with the Steeles West Secondary Plan despite not being within municipal boundaries (Metrolinx, 2008, p. 49). Many of the city's identified Primary Centres, which are intensification areas, fall within the category of Destinations. These neo-urban growth centres and their connection to the broader region can be viewed as "suburban growth poles" (Lehrer, Keil, & Kipfer, 2010).

It appears as though Vaughan's standardized approach to greenfield expansion and emphasis on stability through the early 1990s may complicate the future integration of mixed-uses and transit connections in areas outside the designated employment districts. However, this approach does not appear to be a challenge that is exclusive to the city as all the suburban municipalities within this research have obvious similarities in its segregation of land uses between residential and employment areas, though it seems slightly more prominent within Vaughan. Given the context and history of these municipalities as suburban bedroom communities these challenges are to be expected and require time to gradually phase-in appropriate intensification, which will likely face on-going opposition as

densification and mixed-land uses disrupt the conventional suburban form and the underlying normative codes embedded in this landscape.

Zoning By-law Structure and Overview

Vaughan is the only city among the highlighted municipalities with an identified comprehensive Zoning By-law, albeit an older one. Zoning By-law 1-88 was passed by council in September of 1988 and approved in 1989, where previously there were multiple by-laws applicable to specific areas of the then town within individual communities (City of Vaughan, 2012). The most recent edition of by-law 1-88 consolidates amendments up to January 2012. There is currently an ongoing process within the department to update the by-law and consolidate amendments that have accumulated within the past two years. Because the city has maintained a comprehensive Zoning By-law, it is somewhat more time consuming to consolidate amendments than it is for other municipalities who maintain a series of stand-alone by-laws.

Official Plan Priorities and Principles

Vaughan's newest Official Plan was adopted by Council in September of 2010 and was modified and endorsed by Regional Council in June of 2010 (Vaughan Tomorrow, n.d.). The city's Official Plan is recognized as part of an overarching Growth Management Strategy identified as "Vaughan Tomorrow" that also includes the city's strategic plan and sustainability master plan. There are five "Focused Area Studies" acknowledging areas of specific planning interest, including Kleinburg-Nashville, Yonge Street area, Woodbridge core area, the Vaughan Metropolitan Centre, and the West Vaughan Employment Area; these appear to be a more detailed expansion of Secondary Plans.

The city defines eight key themes as part of the principles and vision within the Official Plan: 1. Strong and Diverse Communities, 2. Robust and Prominent Countryside, 3. A Diverse Economy, 4. A Vibrant and Thriving Downtown, 5. Moving Around Without a Car, 6. Design Excellence and Memorable Places, 7. A Green and Sustainable City, 8. Directing Growth to Appropriate Locations. The intent of

these themes appears to be quite clear and more comprehensive than the themes within the other two highlighted municipalities. This vision is centred on branding of the municipality, and it is unlikely that this ethos will shift longstanding suburban tendencies, such as increasing use of transit as opposed to auto-use.

The fourth goal of a Vibrant and Thriving Downtown is entirely focused on the VMC and the significant expectations contained in this development for accommodating high levels of residential growth and employment. This theme states that “the VMC will be the focus of Vaughan’s identity,” suggesting a desire for the city to appear or potentially even rebrand itself as a highly urbanized suburb (City of Vaughan, 2010, p. 5); this theme also appeared to be reiterated in conversations with R2 who displayed a high degree of optimism towards the plan. The pressure on the VMC development to uphold this predetermined vision through this Official Plan theme will be explored further through site analysis and profiling.

IV – Case Studies

Site Analyses and Profiles

This section provides an in-depth examination of the boundaries and borders of the specific study area, and the existing conditions of each site. Primary, secondary, and greater tertiary zones are identified and considered as per the boundary and study area maps. Through a comprehensive SWOT (strengths, weaknesses, opportunities, threats/challenges) analysis, I determine the significance of each site as relevant to application of the retrofit and FBC tactics and their overall redevelopment potential. Analysis of each of the three sites is partially based on underlying Secondary Plans and Special Policy Areas already designated within the municipality. It is important to note that sites do not follow the exact borders and boundaries of Secondary Plans and Special Policy Areas. A block structure figure was

produced specific to each site's boundaries and borders to further aid analysis of the areas and envision future morphological transformations.

Site Selection Criteria

My site selection is based on my personal knowledge and research related to the study areas in addition to borrowing from Dunham-Jones and Williamson's (2011) broad list of criteria. I chose my sites based on five main parameters:

1. The site is located in suburbs bordering a city centre, primarily dominated by some type of suburban form, and has potential to function as a regional polycentric urban node based on its proximity to arterial roads and existing transit.
2. The entire site should be 80-200 hectares, as this is the size deemed necessary to enact a degree of notable change within an area. Changes involving parking structures and impacts on the greater road networks become a possibility at this size.
3. There are failing, vacant, or underutilized commercial or industrial buildings nearby that provide existing infrastructure.
4. Significant infill opportunities are present, primarily those in the form of vast surface parking lots or underutilized buildings.
5. The site has strong potential for both increased transit connections and active transportation. Locations near rail or commuter lines is additionally preferred. The location of the site on or near an arterial road is preferred, as this increases potential for leveraging existing transit.

Milliken Centre

Boundaries and Study Area

The site chosen within Markham is located in Milliken Mills East—a neighbourhood in the south east section of the city that is primarily centered on Old Kennedy Road bordering the Milliken

neighbourhood that is part of the City of Toronto. The primary zone identified for this site includes much of the land east of the rail lines which front onto Old Kennedy Road, and additional lands west of Old Kennedy that are not single-detached residential (See Figure 4.1; Figure 4.2). The secondary zone includes areas west of the rail lines, encompassing the Pacific Mall development, and areas north of the primary zone between Kennedy and Old Kennedy. The tertiary zone to be considered for this site consists of single-detached homes in subdivisions east of the primary zone. The entire site totals approximately 85 hectares, while the primary zone is approximately 27 hectares.



Figure 4.1: Boundaries and study area of Milliken Centre

Existing Conditions

The Milliken Centre site was identified by a Markham City Architect/Urban Designer generally as “an area of adaptive reuse” with development historically occurring around it (R1, personal communication, November 15, 2013). This primary zone in this site can be characterized as low-density light industrial and commercial with large format commercial in the secondary zone and low-density detached residential within the tertiary zone. The secondary and tertiary zones generally lack any kind of mix in uses, and the primary zone is the only area with existing and emerging mixed-uses.

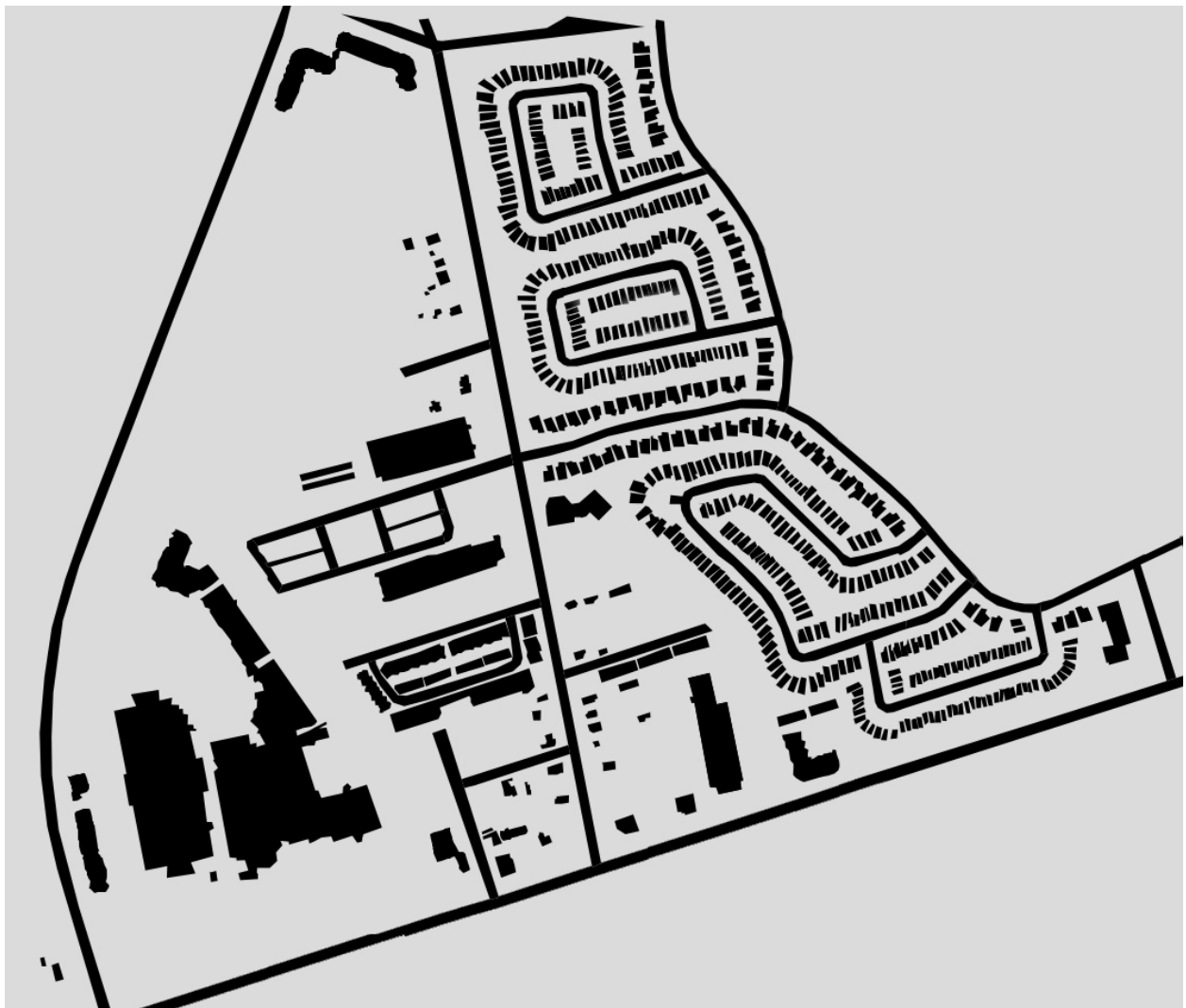


Figure 4.2: Interpretation of block structure/configuration, Image by author



Figure 4.3: Sample of uses along Old Kennedy Road



Figure 4.4: New Urbanist style residential development along Old Kennedy Road



Figure 4.5: Infill site along Old Kennedy Road



Figure 4.6: New residential developments

SWOT Analysis

This site has several key strengths that are favourable in facilitating future intensification. Access to the well-served Steeles East Road bus route and major arterial and the GO Transit station stands as one of the site's greatest strengths. These transit connections are already highly utilized and planned transit expansions, to be discussed in the following section, will accommodate increasing use of transit along Steeles East Road. Approved development of a retirement complex along Old Kennedy Road is also a specific development that is initiating the desired mixed-use build-out of the area as per the Secondary Plan (See Figure 4.6)(R1, personal communication, November 15, 2013). New Urbanist style low-rise apartments containing retail uses at grade have facilitated increasing pedestrian presence in the area (See Figure 4.4). Residential townhouses nearby contribute to a growing variety of housing stock within this plan; additionally, residential uses were previously almost nonexistent on Old Kennedy Road.

One main weakness that should be noted for this site is the potential contamination of both existing and defunct light industrial and commercial lands (Figure 4.3). Auto-related commercial, contractor's yards, and other similar businesses have historically clustered on and around Old Kennedy Road and it is likely that a minimum low-level contamination is present on some of these lands and will require remediation. Other weaknesses relate to the somewhat hostile and unsafe pedestrian and

cycling environment, as sidewalks are limited and narrow and there remains a lack of bike lanes to support current cycling activity.

The main opportunities present for this site lie in leveraging and improving connectivity for all modes of transportation and promoting a vibrant and attractive public realm. This will be achieved by future redevelopment identified by R1 in the following section. Adaptive reuse and the incorporation of historic buildings into new development has helped to maintain the previous identity of the area while moving forward with redevelopment. The incorporation of the façade of the historic Milliken High School into a condominium development along Steeles East Road in 2008 has added interest to the public realm. The numerous underutilized and vacant sites found within the site also provide a wide variety of redevelopment opportunities (Figure 4.5).

Threats and challenges relevant to this site are primarily viewed as the mediation between existing and emerging stakeholders, including the City of Toronto which owns Steeles East Road. The City of Toronto has prevented development of the area due to concerns of increasing traffic onto Steeles East Road (R1, personal communication, November 15, 2003). Sharing these municipal borders presents a variety of challenges and it is likely that more issues will emerge as the site is redeveloped. Additionally, these issues with the City may have been a factor in the extensive delays of completion of the draft Secondary Plan which must now be updated partly due to the time passed since the plan was introduced. Plans to revitalize and redevelop the area have been formally identified as early as 2003 in a staff report recommending the creation of the “Milliken Mills Main Street” (Town of Markham, 2003); eleven years later the final Secondary Plan has yet to be completed (R1, personal communication, November 15, 2013). Another challenge involves the location of the nearby residential subdivisions in the tertiary zone and the potential issues related to opposition to increasing heights of development.

Richmond Hill Regional Centre

Boundaries and Study Area

This site is located within the neighbourhood of Bayview Glen and spans approximately 181 hectares, with the primary zone containing approximately 74 hectares (See Figure 4.7). The general boundaries for this site include Yonge Street to the west, Highway 407 to the south, Bayview Avenue to the east, and Bantrey Avenue to the north. The CN Rail line cuts through a portion along the west side of the site, while the East Don River runs through residential areas north east of the site. The primary zone predominantly mirrors the Regional Centre Secondary Plan boundaries and Urban Growth Centre (UGC) boundaries outlined within the town's Regional Centre Design and Land Use Study, with some minor exceptions. The secondary zone includes the remaining lands within the site boundaries, excluding residential areas in the north east section of the site; these residential areas that include a mix of single-detached homes and townhouses are considered as the tertiary zone. The Regional Centre is part of one of the provincially designated areas for growth, as identified in the Places to Grow Act as the Richmond Hill/Langstaff Gateway Urban Growth Centre (UGC). This UGC is also an Anchor Mobility Hub within Metrolinx's Regional Transportation Plan (RTP), and is recommended to achieve a density of 400 people and jobs per hectare (Richmond Hill Regional Centre Design & Land Use Study, 2010).

The selection of this site is also favored due to its key location just north of the Langstaff Gateway, which is comprised of approximately 48 hectares south of Highway 407 between Yonge Street and Bayview Avenue and is included within the primary zone. The Gateway forms the southern portion of the Richmond Hill/Langstaff Gateway UGC, as identified in the Growth Plan for the Greater Golden Horseshoe (Regional Municipality of York, 2009).

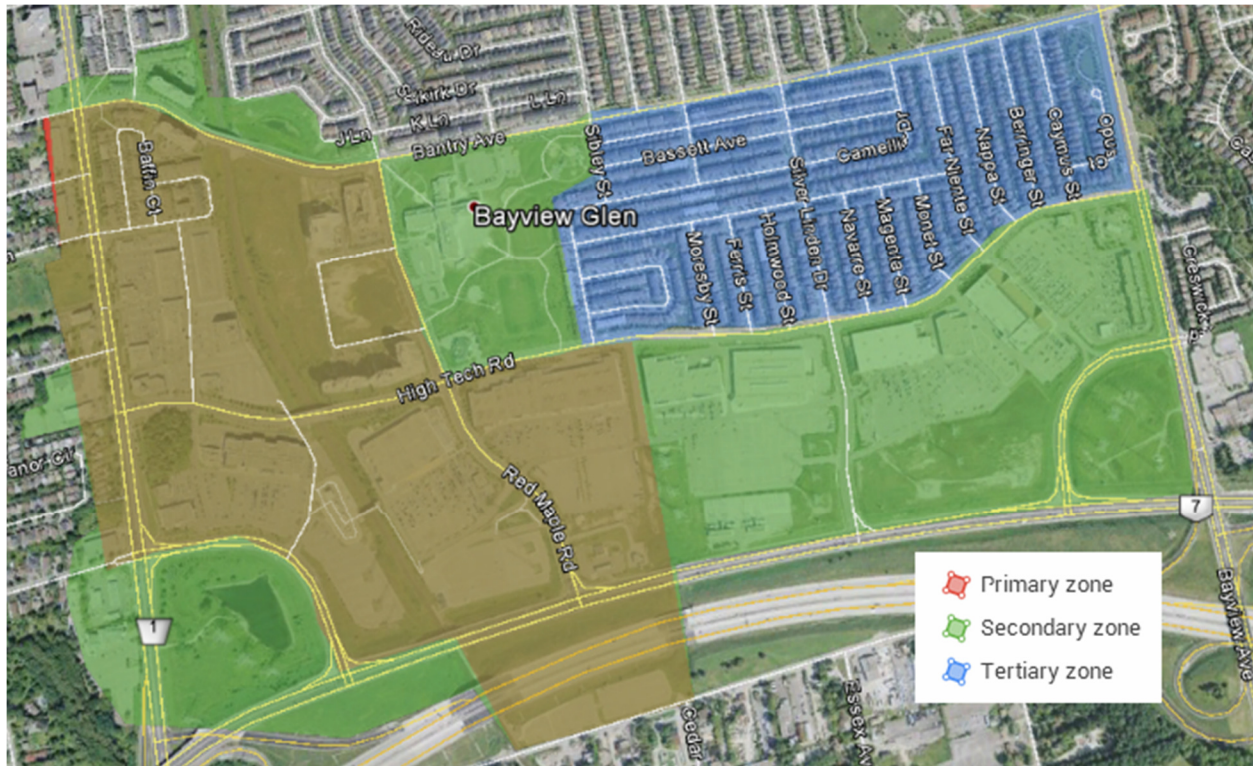


Figure 4.7: Boundaries and study area of Richmond Hill Regional Centre

Existing Conditions

The existing conditions of the site can broadly be described as a mix of large format commercial and low-density residential. The majority of the site is characterized by large building footprints and vast surface parking areas (See Figure 4.8). Low-rise single detached residential dwellings and townhomes account for the tertiary zone. The Langstaff GO Station currently maintains a substantial 1137 parking spots, emphasizing the current priority of surface parking within the site (GO Transit -Station Profile Information, n.d.). While there remains some variety of uses within the site as a whole, mostly along the Yonge Street corridor, the majority of development is dominated by commercial uses. The large format commercial uses have produced a relatively non-existent streetscape in the site, aside from the Yonge Street corridor. The Langstaff Gateway is the only UGC in the GTA spanning two local municipalities, which requires a greater level of coordination between municipalities. It is a significant focal point where five major transportation nodes are planned to intersect: the York Viva Rapid Transit, GO Rail,

Highway 407, the future 407 Transitway, and the future Yonge Street Subway extension. These transportation connections are intimately connected to the Regional Centre site.



Figure 4.8: Interpretation of block structure/configuration, Image by author



Figure 4.9: Vast surface parking within site



Figure 4.10: Elements of existing transit hub





Figure 4.11: Sales centre and advertising for condominium development within site

SWOT Analysis

The wide variety of transportation options present is a primary strength for the Regional Centre. The transit hub contains GO Transit trains and buses as well as the York Region VIVA, while Hwy 7 and Highway 407 act as important arterials (See Figure 4.10). These transit connections provide a strong basis for implementing retrofitting tactics.

Likely the most notable weakness of this site is the vast amount of surface parking present (See Figure 4.9). Parking is extensive throughout the entire site and is paired with expansive low-density retail big box buildings. This parking limits the presence of internal road and street connections throughout the site. While this district is designated as an Anchor Hub and defined as a major transit station area, over 80% of trips during peak rush are made by car (Metrolinx, 2012). This travel behavior reflects the auto-dominated character of the area regardless of existing transit connections.

Regarding the issue of surface parking present on the site, this weakness is also viewed as a prominent redevelopment opportunity. Infill of some of these surface parking areas in the form of residential would provide greater access to the transit hub and potentially reduce auto dependence within the site. Opportunities to increase modal split are present, and the introduction of a new condominium development within the secondary zone will likely facilitate increased use of the transit hub (See Figure 4.11).

One of the major challenges relevant to this site include the strong opposition from residents to the 8874-8890 Yonge Street development site, which displays the issues related to intensification within the town and evidently the disparity between residents and municipal staff regarding future growth. This development and the resistance encountered will be further explored within the proposed retrofit programming in the following section.

Vaughan Metropolitan Centre

Boundaries and Study Area

The Vaughan Metropolitan Centre (VMC) is the area slated for development of the city's new downtown. The entire site spans approximately 179 hectares and is projected to include 1.5 million square feet of office development, 750,000 square feet of retail development, and a minimum of 12,000 residential units (City of Vaughan, Economic Development, n.d.). The primary zone within this site spans approximately 105 hectares and is identified as the UGC boundary as displayed within the VMC Secondary Plan (See Figure 4.12). The secondary zone includes the VMC boundary also identified within the Secondary Plan. The greater tertiary zone is designated as the land not considered within any VMC boundaries and is west of Creditstone Road.

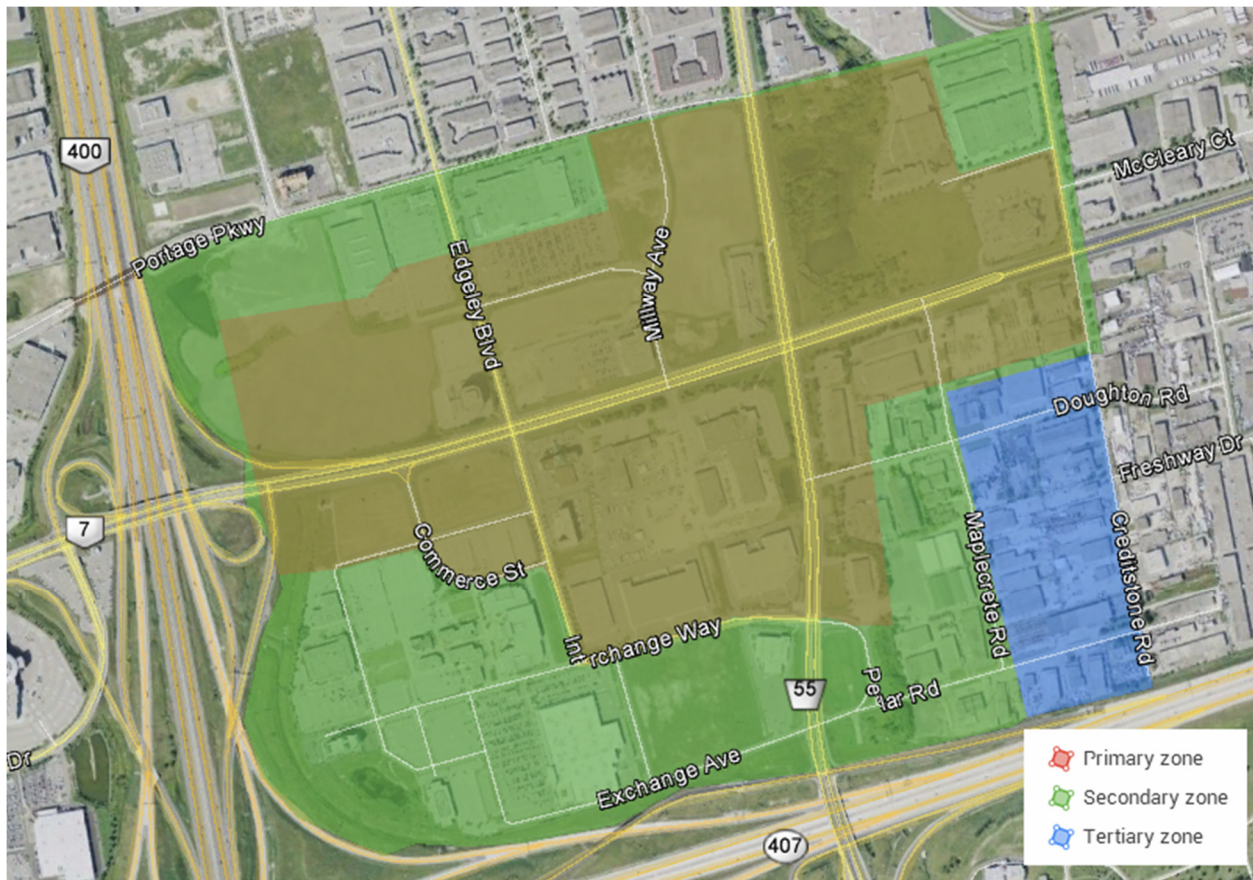


Figure 4.12: Boundaries and study area of VMC

Existing Conditions

The existing conditions of the VMC within the primary and secondary zone can be described as mostly large format, both commercial and light industrial. The primary zone contains vast swaths of undeveloped land that are considered here as large infill parcels, while the tertiary zone contains significant amounts of light industrial. This site contains vital employment lands within the city and currently lacks any significant amount of residential areas which will be introduced with the ongoing VMC development (See Figure 4.13).



Figure 4.13: Interpretation of block structure/configuration, Image by author



Figure 4.14: Existing large-format commercial and vast surface parking



Figure 4.15: Advertising for condominium developments highlighting subway access

SWOT Analysis

The amount of undeveloped and underutilized land acting as a “blank slate” within the site allowed the VMC plan to establish highly ambitious goals and principles. The ability to develop specific areas from scratch is viewed by many staff as a notable opportunity, but also a challenging one in establishing appropriate precedents (R3, personal communication, November 6, 2013).

Potential contamination of this site may be one weakness, as large amounts of industrial and commercial uses occupy much of the east end of the site. This weakness is similar to the Milliken Centre, though may be more significant due to the larger site and greater number of industrial and commercial uses. Vast big box retail and parking primarily clustered on the west end of the site is both a weakness and an opportunity (See Figure 4.14). Phasing out this amount of parking alone would require a significant amount of time, but the potential for infilling these space is high. A lack of road and street connections makes for a weak public realm and increases dependence on auto use in an already auto-dominated area. This lack of accessibility and lack of public realm makes this site a more difficult one to retrofit and redevelop.

Opportunities for large-scale infill within this site are significant. Infill has been emphasized by City staff as particularly important in the VMC lands and within the City itself as greenfield decreases (R3, personal communication, November 6, 2013). The vast parcels of undeveloped adjacent to Hwy 7 will be infilled with the build out of the VMC plan. Evidently the subway development was identified as the main catalyst for development of the VMC itself, and establishing a transit-oriented community is a key opportunity for creation of a vibrant streetscape in the district (R3, personal communication, November 6, 2013)(See Figure 4.15).

Auto dominance is viewed as a current threat to the redevelopment of the site under the VMC Plan. It remains to be seen whether the modal split will increase in transit and active transportation, as envisioned in the plan. While there does not appear to be any significant residential opposition to the project itself, the continuing low-level amendments to the VMC Plan may impact the outcome of the project and compromise some of the City's goals (R3, personal communication, November 6, 2013). Additionally, the VMC site is fairly large and it will take a significant amount of time for plans to materialize and build out to occur. Lastly, transitioning from existing industrial employment lands within

the site to new kinds of employment outlined within the VMC plan may be a challenge, as the area has historically maintained industrial uses (R3, personal communication, November 6, 2013).

Achieving Higher Densities at the Scale of the Corridor, Neighborhood, and District

This section proposes a basic retrofit and FBC program for each site in order to suggest a more sustainable development pattern. The proposed programming incorporates and considers aspects of the relevant Secondary Plans previously mentioned, the SWOT analyses undertaken, and any proposed or pending developments identified by interview participants. While this programming is largely simulated and evidently lacks a variety of real-world factors, using a hypothetical program for redevelopment provides a better idea of what a suburban retrofit could look like and may inform the actual undertaking of a retrofitting project. Additionally, inclusion of future development plans outlined by interview participants contributes to a more realistic program. Regardless of scale, redesign of these sites is envisioned as an incremental process where parcels of land are developed by individual owners in a way that adheres to an overall community redesign goal. The viability of retrofitting and FBC tactics in practice are revealed through this programming.

Corridor Intensification and Leveraging Arterial Transit Use (Milliken Centre)

This site is currently being studied as a new update to the Secondary Plan.⁴ Over a million square feet of retail will be introduced, making it a major retail hub. Rapid transit is anticipated along Steeles East Road, and the City of Markham is working with the City of Toronto and Metrolinx in envisioning future light-rail transit. While funding is identified as a key issue in the planning of this project, the GO station immediately south of Steeles is suggested as an additional factor in the likely development of a mobility hub at the site. There are plans for increasing the density of this site significantly and facilitating

⁴ The following section relies on responses from R1 unless otherwise cited.

a large mixed-use population with several thousand units of housing on the North side of Steeles within the site.

Housing for seniors is in high demand, and a 24-storey seniors building has been recently approved on Old Kennedy Road. High-rises will be introduced around the site, making it a high-rise mixed-use district as the light industrial and factory uses are phased out. In the update to the Secondary Plan, a plaza is planned at the northern end of the site directly across from the existing apartment buildings. These transformations are slated to occur over ten to twenty years, as the current Secondary Plan only allows for 3-storey buildings and must first be updated to accommodate the planned developments. The lack of height allowance within the current Secondary Plan is due to strong objections from the City of Toronto in an effort to control traffic coming out of Markham onto Steeles, which Toronto owns. Current talks with Toronto and Metrolinx regarding the increased density focuses on the potential benefits for both municipalities and the pressure to intensify development in this area.

The planned transit improvements identified by R1 are a key part of retrofitting this site. The high levels of transit use in this area is a major strength that can be leveraged to facilitate future intensification. In addition, inclusion of bike lanes and bike infrastructure along Steeles East is viewed as an important upgrade in response to the growing numbers of cyclists. Along the Old Kennedy corridor, the adaptive reuse opportunities present are numerous and are an ideal starting point for introducing new types of development envisioned within the Secondary Plan. Retaining the existing buildings previously used for light industrial, in particular, provides a way to maintain the history and character of the corridor while also making construction of entirely new buildings unnecessary.

FBC Program

The scale of this proposed code is identified as the corridor and neighbourhood as Old Kennedy Road remains the central corridor, though the entire site includes greater neighbourhoods (See Table 1).

The floating zone implementation method updates the pre-existing conventional zoning by adding a new zone with an FBC embedded in its regulations, but usually does not require a Regulating Plan (Parolek et al., 2008, p. 103). This method was chosen due to the fact that it is one of the least prescriptive pilot program methods which is suitable considering the smaller size of the site and emphasis on redevelopment of the corridor. Frontages were chosen to form the organizing principle for the code in order to highlight the significance of engaging buildings with the public realm (Parolek et al., 2008, p. 26).

Table 1: Proposed FBC for Milliken Centre

Scale	Corridor/neighbourhood
Implementation Method	Floating zone/traditional neighbourhood development
Site Context	Redevelopment/infill/adaptive reuse
Site Size	Potentially applicable to approximately 85 hectares
Administration	Municipal staff
Organizing Principle	Frontages

Reaffirming Transit Oriented Development through Greyfield Infill (Richmond Hill Regional Centre)

The variety of present and future transit connections of the Regional Centre acts as the basis for the retrofit of this site (See Figure 4.16). Integration of an internal street grid that breaks up the large blocks of existing commercial developments is essential to the infill of vast surface parking within this site. In order to appropriately utilize the strong existing and emerging transit connections, it is necessary to infill the greyfield areas surrounding the transit hub and along the Yonge Street corridor. The Regional Centre Design and Land-use Study encourages this kind of retrofitting strategy, and acknowledges the need for improving the public realm and decreasing auto reliance.

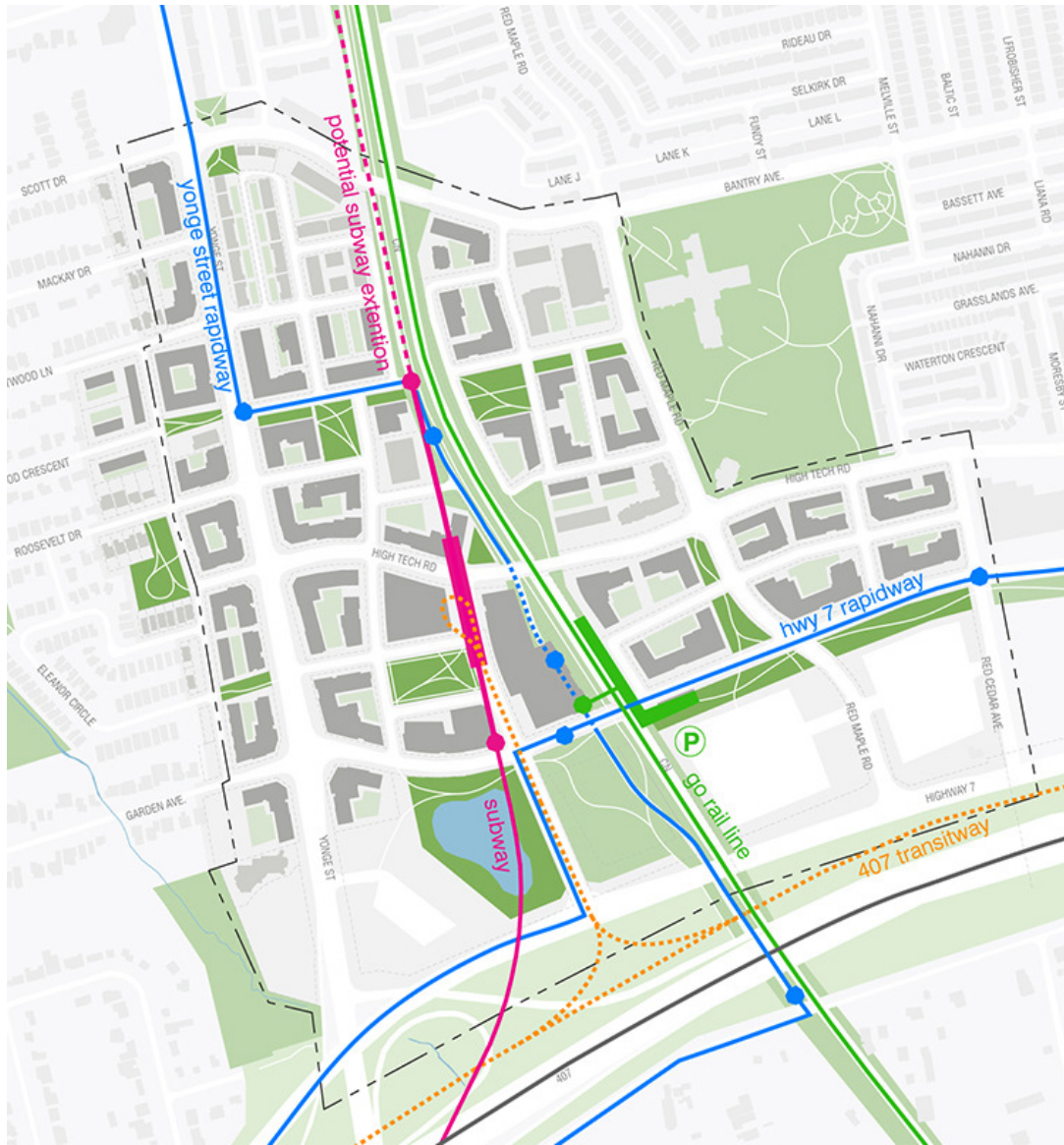


Figure 4.16: Schedule 2-Recommended alignment of transit initiatives and infrastructure, Richmond Hill Regional Centre Design & Land Use Study, 2010

This UGC is expected to accommodate approximately 48,000 residents and 30,000 jobs with the Langstaff Gateway to accommodate up to approximately 15,000 residential units and approximately 360,000m² of office/retail space (City of Markham, 2010). The Gateway is presently characterized as mostly underutilized brownfield areas with general employment, industrial, and open-storage facilities. The character of the UGC and the overall site presents multiple opportunities to establish the Regional Centre as one of the most significant mixed-use nodes in the GTA, and to provide a precedent for fully

supporting development through integration and convergence of the mobility hub. One of the core principles for development identified by the Regional Centre study is to “recognize and enhance the existing assets of the site;” this principle aptly summarizes the retrofitting strategy envisioned (Richmond Hill Regional Centre Design & Land Use Study, 2010).

The 8874-8890 Yonge Street site is a proposed mixed-use, high-density residential and commercial development at the southwest corner of Yonge St and Westwood Lane that has encountered extensive opposition from residents. The residential development, planned as a 24-storey building, has raised issues of shadowing and noise related to the nearby stable residential areas (York Region, 2013). The reaction to this proposal, including the hundreds of residents occupying council chambers during a public consultation meeting, is a clear indication of the future issues residents will have as intensification occurs. R2 states that there are always issues with intensification and corridor development in this area, and most people don’t really like any kind of change in the vicinity. The respondent went on to state that growth is inevitable and must be managed; the distinctive attitudes of residents and municipal staff suggests that intensification of the Regional Centre site will be difficult to achieve as planned and as appropriate (R2, personal communication, November 2013).

In potential redevelopment of large sites into denser mixed-use areas such as the Regional Centre, issues of financing are also significant. Dunham-Jones has identified common criticisms of mixed-use developments as being high risk projects and believes that there is a substantial challenge in obtaining financing. At the same time, there has been notable interest from developers and banks when observing the successful mixed-use projects where they are viewed positively as projects that actually provide much more flexibility in responding to shifts in the market (E. Dunham-Jones, personal communication, October 2013).

FBC Program

The scale of this code is identified as the neighbourhood and district due to the large size of the site (See Table 2). The embedded form-based zones method updates the pre-existing zoning by adding new form-based zones with regulations, and also revises the zoning map (Parolek et al., 2008, p. 103). This method is more prescriptive than the floating zone and was chosen to ensure consistency over this large site. The building type and transect approach was chosen to form the organizing principle for the code in order to combine the benefits of applying a transect to a larger site while integrating building types to reinforce community character for smaller areas within the site (Parolek et al., 2008, p. 23).

Table 2: Proposed FBC for Richmond Hill Regional Centre

Scale	Neighbourhood/district
Implementation Method	Embedded form-based zones (mandatory and integrated)
Site Context	Redevelopment/large-scale infill and greyfield
Site Size	Potentially applicable to approximately 181 hectares
Administration	Municipal staff
Organizing Principle	Building type/transect

Accommodating Future Higher-Order Transit Through Large-scale Infill (VMC)

The VMC's area slated for development of the city's new downtown is envisioned as a "modern urban centre for residents and businesses that encompasses all amenities of urban lifestyle" (City of Vaughan, 2010). The VMC is no doubt an extremely ambitious plan, and the sheer size of the district itself presents a multitude of challenges to intensification that is envisioned in the plan (See Figure 4.17). In order to achieve these goals and support the incoming subway development with minimum density levels, the infill of the large-scale and low-density sites must be pursued aggressively. Redevelopment in the form of infill is evidently the most prominent retrofitting principal for the VMC.



Figure 4.17: Model concept of 2031 growth targets for the Urban Growth Centre and VMC, Vaughan Metropolitan Centre Draft Secondary Plan, 2010

R3 believes that the VMC encompasses all three major retrofitting principles, including re-inhabitation and regreening, due to the size of the district. Entirely new principles that were once never considered relevant to the VMC area, such as transit-oriented, walkable, accessible, green, are described by the respondent as necessary (R3, personal communication, December, 2013). Using a transect approach to the district may be desirable, as addressed in the FBC programming. The large number of zoning amendments anticipated emphasizes the relevance of FBCs within the VMC, and would potentially make it easier to actually realize the desired goals of the VMC. Redevelopment of the VMC should occur in a phased way, outward from the immediate site of the future subway, in order to support subway ridership and development. This kind of general phased approach may also be necessary in dealing with the large size of the district.

FBC Program

The scale of this code is identified as a district due to the large size of the site and its current limited and segregated uses (See Table 3). The embedded form-based zones method was chosen to maintain the hybrid zoning approach desired in all sites but maintain some control within this large site, similar to the Regional Centre. The transect was chosen to form the organizing principle for the code in order to address the variety of elements present in this large district, including green buildings, transit, and storm water management (Parolek et al., 2008, p. 18).

Table 3: Proposed FBC for VMC

Scale	District
Implementation Method	Embedded form-based zones (mandatory and integrated)
Site Context	Redevelopment/large-scale infill
Site Size	Potentially applicable to approximately 179 hectares
Administration	Municipal staff
Organizing Principle	Transect

The outlined programming for all three sites generally emphasizes incremental development focusing on smaller tracts of land, regardless of overall scale, and maintains more flexible and less prescriptive implementation methods to allow for easier pilot project integration of FBCs. These programs outline a modest way to integrate retrofits and FBCs in municipalities that have not yet utilized these methods but would like to test them within a specific area.

Barriers to Implementation

This section aims to identify the potential barriers in implementing FBCs and retrofit tactics in the three specific sites: Milliken Centre (Markham), Richmond Hill Regional Centre, and VMC (Vaughan)

and more generally within the three municipalities themselves. These potential barriers were highlighted in my conversations with city planners, architects, and urban designers from Markham, Richmond Hill, and Vaughan working within the public sector. The two main themes that emerged from my interviews when discussing the implementation of FBCs were broad public resistance from residents regarding intensification—though not always towards designated growth centres, and the lack of general understanding coupled with a reluctance from municipal planning staff to learn about FBCs and retrofits. Additionally, in discussions pertaining to the VMC, the issue of how planners interpret Official Plans and Secondary Plans was raised, and the predominant negative perception of retrofitting was discussed. This section concludes by considering the additional perspectives of individuals interviewed outside of the public sector regarding the two main barriers underscored in this research.

Milliken Centre

Discussions on FBCs and retrofitting suburbia are gaining increased attention in planning and academic debates in North America, however, the everyday reality in planning departments is that there is some ambivalence in the application of these tactics due to the lack of knowledge, but moreso because of the political fallout that might be engendered when labeling such tactics as FCBs.

While R1, City Architect and Head of Urban Design, acknowledges the overarching significance of design and its importance in relation to FBCs, it appears that there is a lack of knowledge of application of FBCs.⁵ When asked if FBCs were relevant to the site in question and the city itself, R1 discussed the importance of quality in urban design and stated that the concepts relevant to FBCs are addressed by city staff despite not being identified specifically as FBCs. The respondent expressed some confusion regarding more technical aspects of FBCs and also stated that the term itself is “really an American phrase.” R1 appeared to defer from using the term and continually stated that staff uses similar concepts but does not identify these as FBCs.

⁵ The following section relies upon responses from R1 unless otherwise cited.

When asked about the aims of retrofitting as relevant to the city and site in question, R1 provided several detailed examples of sites and districts which addressed all aspects of retrofitting. The respondent demonstrated how the retrofitting framework could be utilized in analyzing various sites throughout the city and was familiar with using these tactics in a practical context. Adaptive reuse in the form of reinhabitation was identified as a major theme emerging in Markham; shopping centres, large plazas, and municipal airports were highlighted as key opportunities for reuse. Continuing on the theme of adaptive reuse in the context of the Milliken Centre site, the respondent emphasized this area as a hub for reuse activities with great potential for intensification. While the site's new Secondary Plan remains under review, select developments have already been approved due to increasing desire for new kinds of uses. R1 suggests that the denser, mixed-use transformation expected to occur within this site appears to be one that is desired by the majority of residents and there remains high demand for a variety of housing that includes high-rise buildings. Additionally, the increasing pedestrian and biking activity in the area is highlighted as a significant opportunity for unique new pedestrian connections that can directly intersect with the nearby GO Transit station.

In discussions of public resistance, R1 initially states that many residents "tell us that we didn't move to Markham to live in Toronto." R1 categorizes perceptions of intensification stemming from two main types of residents: one type is the resident who lives in or around an area who does not want change and the other is the individual who does not live in the area but would like to and has a "different kind of model accommodation in mind." The first group is generally considered those residents who arrived as first time home buyers during the 1980s and will be looking for retirement options over the next ten years. The second group is identified as the millennials, which R1 states is a group that is "more urban in its sensibilities and desire lines" and purportedly "won't drive cars." While the potential influx of the second group into Markham would likely shift planning policies to support a more dominant "urban form," R1 states that this group is not expected to reside within these suburban

municipalities until the city is urbanized to a certain degree. Retaining this group within the city, luring millennials into Markham and not letting them go “away to Toronto,” is identified as a key issue for city planners. R1 believes that “there is a desire [for more urban environments], we just haven’t been able to fulfill it.”

Richmond Hill Regional Centre

The unique challenges related to public resistance regarding new development and intensification in parts of Richmond Hill was previously outlined within chapter three.⁶ During my interview with R2, frustration was expressed when discussing continuing resistance to new development stating that in the past the town was “accused of all kinds of things” by residents. The respondent went on to state that “the community always, always thinks that the town is not doing enough and that we are in the developer’s pockets.” The tension between planning staff and residents within this context is evident and this issue continually resurfaced through the entire interview, which reveals how the implementation of FBCs even within broader discussions of sustainability can get quite political in a context of distrust and purported clientelism. Residents in this context are more likely to be more critical of any planning policies that are supposed to be promoting environmental sustainability through intensification—as this shift can be particularly advantageous for developers—which in effect will alter the suburban form and the lifestyle they bought into.

R2 views the consultation process relating to the Official Plan as an activity that essentially “lets the community know that intensification is going to happen because of the Provincial Policy Statement... and the need for a much better transit system.” Continuing on the topic of impending urbanization, R2 states: “We are actually built out. The only way we can actually still grow is through intensification along corridors and into mixed-use areas. We are committed to focus growth along Yonge Street and Hwy 7... and of course we encourage reasonable intensification in other neighbourhoods and controlling the

⁶ The following section relies upon responses from R2 unless otherwise cited.

density.” The importance of the consultation process as a vital tool in mediating issues related to public resistance continued throughout the interview, and R2 reiterated the transparency of the process “even though the neighbourhood feels that it is not.” Evidently, residents and staff appear to have a considerable amount of differences of opinion regarding density and intensification in the town.

On the theme of change in suburban areas, the respondent stated that “any change to anyone who’s been there for a long time would pose a threat, especially when it is a form that they feel is affecting what they think Richmond Hill should be.” R2 continued in discussing the inevitability of change and the importance of achieving balance in the desires of residents. Objection to intensification by residents in the municipality is common, and the perceived impact of new developments on property values was highlighted as a key concern. The conflicting desires of residents who resist development in this way and the need for the municipality to manage growth and increase transit was addressed by R2 as reoccurring challenges during the interview. As R2 discussed, the consultation process provides staff the opportunity to remind residents of the “bigger picture,” arguing that “this is how the planning process works.” This comment suggests underlying tones related to the planner as expert or knowing what’s best within the planning process.

In discussions regarding FBCs, R2 stated that the town has not attempted to use them in any way and went on to highlight the potential for increased opposition from the development industry because “they won’t be able to do what they need to do.” For R2, greater municipal government control over development through FBCs could be an impediment to growth. Additionally, the “detail” involved in developing a FBC was highlighted by R2 as a challenge, ultimately stating that “it’s very difficult to do, and I think that it could be done but I don’t know how to do it.” When asked if there is any potential for FBCs to be utilized in an integrated way with the existing zoning framework, R2 does not believe that both can be compatible. To this end, there does not appear to be a place for FBCs within the municipality as long as the traditional zoning framework exists.

VMC

R3, an Urban Designer at the City of Vaughan, views FBCs as “wildly daunting” and states that FBCs would have to be developed from “nothing.”⁷ While R3 believes there is great potential within the overall FBC framework, the lack of knowledge and education by staff on the subject is quite significant and this is openly identified by R3. The respondent commented that to their knowledge only one other staff member has expressed familiarity with FBCs, therefore making it more difficult to promote these concepts when the staff is “coming from nothing.”

In discussions of retrofitting as relevant to the VMC, R3 states that the VMC “district” can be seen as a large scale retrofit on a broader scale. At the same time, R3 states that this district is also a brand new development which places the VMC in an interesting position when attempting to characterize it. These comments suggest some confusion over what constitutes a retrofit; it appeared as though R3 did not entirely understand the concepts through statements such as these. Despite this, R3 believes that the main retrofitting themes discussed are generally being applied within the development of the VMC and suggests that a formalized process following these tactics would be helpful in monitoring the development to ensure goals are being met.

When asked about public perceptions of intensification or density, the respondent suggested that while there was general public resistance that is commonly encountered in many other municipalities within the region, resistance related to the VMC mainly concerned smaller details of the project and low-level issues. The project itself is said to be largely well-received by city residents who understand the role of the VMC as a denser urban centre and the significant employment opportunities being presented. R3 argues that resistance to intensification is usually relative to the site and optimistically stated that in the case of the VMC, “everybody wants it, everybody’s excited.” This specific view of the VMC reflects some of the policy language in the city’s Official Plan in attempting to

⁷ The following section relies upon responses from R3 unless otherwise cited.

transform its identity from a suburban municipality to an urban municipality. Political resistance regarding many development applications was also identified, and R3 states that many councilors have opposed certain uses that they believe are not appropriate in areas of the VMC.

The variations in which planners and urban designers often interpret planning documents, specifically Secondary Plans and Official Plans, was outlined by R3 as a major challenge stemming from discussions of balancing the city's goal to intensify specific areas with maintaining lower-density developments that are still desired by many residents. A large part of maintaining this balance and finding some sort of consensus requires increased involvement in the earlier stages of development, in order to avoid amendments and negative consequences related to the development or design. The interpretation of a planning document by a planner is said to be a more hidden factor in how exactly a development materializes, as a planner or designer may have different standards in considering what is appropriate.

Another issue raised by R3 on the topic of retrofits and the large amount of new development to occur in the district over a fairly short amount of time was simply that "retrofitting is not always viewed in a positive light." This statement was not further expanded upon, though seemed to suggest the previously identified negative association with New Urbanism that appears to be widespread. A lack of rationale provided for this statement when probed further reveals the somewhat problematic nature of these dominant perceptions.

Private Sector Perspectives

In discussions regarding a lack of practitioner knowledge by municipal staff and limited desire to explore new regulatory practices specifically relating to FBCs in the GTA, Liz Howson summarizes these issues with the following position:

Unfortunately, some of these people, for them, planning is just a job. It's not a passion for them and they're not really professionals and they're just caught up in the day-to-day. They're not reading and they're not thinking, not looking at how can I make things better, they're just wanting to keep their life simple. If you take on form-based zoning... you not only would have to educate other people in your department, you'd have to be working with other departments who are not used to thinking outside of the box. You really really have to want to do it. You have to be really passionate and think, this is gonna make a huge difference and this is what I'm gonna do. So I suspect that people... they probably are just saying this is way way too much work (L. Howson, personal communication, February 13, 2014).

It is apparent that Howson sees the traditional zoning framework as one that is fully entrenched in the majority of the mindsets of practitioners and will likely continue to be for some time. The time and resources involved in educating and later attempting to implement any kinds of new regulatory changes is significant enough to make it particularly difficult to even introduce these changes at a basic policy proposal level. The political nature of planning additionally plays a significant role in these challenges, as the influence of developers and councilors in response to their constituents limits the ability of planners; proposing new ways of doing things is often difficult because of the political nature of planning.

Public resistance to intensification as referenced in this section is said to be related in part to North American cultural expectations of the static suburb and constantly evolving city idea, where Dunham-Jones states that suburbs have been historically expected to "remain forever frozen in whatever form they were first built out in" (E. Dunham-Jones, personal communication, October 29, 2013). Another significant aspect of resistance to intensification, Dunham-Jones argues, is the presence of NIMBY groups who genuinely believe that they are doing the right thing to "protect their neighbourhood." Dunham-Jones believes many of these groups resist change in part because most of the change that they have experienced previously has been negative with respect to mixed-uses and density:

I think we're seeing an interesting convergence of the market desires of a lot of empty nesters who want to stay in their community but are maybe getting tired of maintain the big house. Often getting a little more urban housing in those neighborhoods is now extremely attractive to those folks. Now, if you describe it as density, they'll fight you like hell! But if you describe it more in terms of the lifestyle and what it affords... if it turns into a successful project it has a ripple effect through that whole region, because then people say oh that's what you mean by mixed-use, density, oh sure we're ok with that.

But if the first project either gets so compromised or it's not well-designed, if it doesn't do well financially, then people will tend to say that stuff doesn't work. New Urbanism doesn't work here. Smart Growth doesn't work. You'll reset that for another twenty years. It puts a ton of pressure on whoever goes to market first. I think that part of the key with retrofitting is that the market for urban living has to be demonstrated (E. Dunham-Jones, personal communication, October 29, 2013).

This comment speaks to the changing assumptions embedded in dominant conceptions of suburbia as a place and as a lifestyle. The respondents seem to point to the changing demographic nature of suburbia; it is no longer a place to raise families, but we are seeing an increased need for different housing types for single people (the knowledge workers) as well as elderly people who want to remain in the community but need to downsize. The issues were also echoed by R1 when discussing the emerging market desires for a more urban form in suburbia and the political challenges in addressing these needs.

The main barriers to implementation of FBCs and retrofitting identified within this section include broad public resistance from residents towards intensification and a lack of experience and reluctance from planners and urban designers in understanding FBCs and retrofits. Additionally, the shifting demographic of suburbia is currently challenging conventional zoning practices and the dominant suburban form.

V – Summary of Findings: Could these Tactics be Integrated?

Form-based codes

Form-based coding is an innovative regulatory tool within land development that is distinct from the conventional use-based regulatory regime. While FBCs offer an alternative to some of the previously outlined consequences associated with Euclidean zoning, they are far from a complete remedy. As identified, the lack of experience by planners and urban designers with this new tool poses a challenge in integrating it within the regulatory framework.

The most attractive feature of FBCs appears to be the flexibility of the model in adapting to a wide variety of geographic areas and various scales. The FBC model is able to adapt to the desires of a community through the consensus-building process while maintaining consistency, predictability, and order (Parolek et al., 2008; Broberg, 2009). As demonstrated in the case studies, FBCs are especially well-suited to infill and revitalization projects and the development of new uses and structures that retain the original character of the area (Katz, 2004). This is a significant advantage over conventional zoning, as setbacks and separation of uses can radically change the existing character of neighbourhoods, especially those that contain heritage designations.

Many of the major disadvantages related to FBCs have been highlighted in this study. The inexperience of practitioners in the development and implementation of FBCs has limited its use (Tombari, 2009; Madden & Spikowski, 2006). As revealed in the interviews, many planners and urban designers are unfamiliar with any kind of zoning that does not follow the conventional framework. Further, changing the existing regulatory model even incrementally appears to be extremely difficult based on participant responses and general perceptions. Developers and architects would also be affected by any changes, and many architects have stated that the Architectural Standards embedded in

FBCs would suppress their creativity (Sitkowski & Ohm, 2006; Madden & Spikowski, 2006). Howson summarizes the nature of zoning and broad issues in changing the regulatory regime:

The bottom line is zoning is incredibly complex. People have zoning rights, as they're called, so it becomes very very difficult to undo what you have, and because these things have been in place for so long it just makes it really really complicated and difficult (personal communication, February 13, 2014).

While it seems highly unlikely that form-based regulations could replace the conventional Euclidean regulatory framework, they do provide a practical option that may work within the existing framework if applied thoughtfully. FBCs may be utilized in a complementary or hybrid type of role as seen in the localized cases of Mississauga's Downtown 21 and North Oakville where elements of FBCs are applied under an individual by-law for a neighbourhood or district.

FBCs and Euclidean zoning have functional differences: while FBCs act as a way of implementing a physical plan, conventional zoning acts as a placeholder for future development of a site. These differences make it particularly difficult for both to be fully and appropriately compatible under the same by-law. Creating separate by-laws for districts where FBC-type regulations are desired partially mitigates this problem and makes it feasible to implement design-based regulations. Howson articulates the importance of this type of negotiating by stating that, "maybe I'm not going to be able to persuade people to redo the entire Zoning By-law, and maybe I don't need to" (L. Howson, personal communication, February 13, 2014). Consideration of FBCs for new development areas or for revitalization should be pursued as an alternative or additional tool if stakeholder consensus deems this to be desirable and if resources are available for staff education and development of the code.

Retrofitting tactics

Financial challenges appear to be a primary obstacle in the process of suburban retrofitting, as revealed in the literature and echoed by select interview participants. Substantial initial funding is usually required for retrofits for acquisition of multiple parcels and a larger retrofit site, such as the

VMC, will produce higher upfront costs. Despite the fact that retrofits are usually more cost-effective than conventional subdivision development or greenfield expansion over the long term, the perceived risks involved in large upfront costs often hinder the consideration of these projects (Tachieva, 2010, p. 10). Typically, it is developers who enable suburban retrofits by financing their implementation (E. Dunham-Jones, personal communication, October 2013).

Introducing mixed-use and dense new development through retrofits will often produce a higher tax base than previous development and cause values of adjacent lands to increase. This may generate issues related to gentrification. Concerns related to the somewhat indirect role of retrofits in processes of gentrification have been identified by both critics and key advocates, such as Dunham-Jones:

If you start to see an area getting really successful and a lot of retrofitting, though, then you start to see gentrification. Then it starts to go beyond the borders, though you didn't displace anyone in the actual construction, by creating now a great public realm you've increased the values of their homes and we do see that in places like Arlington, Virginia; we're seeing a fair amount of gentrification and displacement that is starting to happen and that's where the public sector can attempt to get in the game (personal communication, October 2013).

The consequences of "successful" retrofit projects are emerging, though there appears to be a lack of research in examining the results and after effects of retrofit projects. This makes it difficult to gauge the degree of gentrification actually occurring that is specifically related to retrofit projects. Continuing research and analysis several years after a retrofit is complete would provide a clearer picture of these issues.

Considering FBCs as alternatives to conventional zoning would likely be a key step in attempting to enable more suburban retrofits or similar mixed-use suburban projects, as FBCs are a tool for implementation. Educating and engaging with public perceptions regarding mixed-use and higher density developments also stands as an important high-level step in producing retrofits. The concept of

the large-scale suburban retrofit is also well-suited to landscapes that require substantial revitalization in cities or regions that have less dense or active urban centres. In an American context, retrofits appear to be a good solution where many cities and regions have experienced economic decline or failed suburban big box or mall developments. This is much less relevant to the case of the GTA, where growth continues to increase in the region and beyond into the Greater Golden Horseshoe.

Adapting the concept of suburban retrofitting to the context of the GTA to obtain its benefits generally requires focus on smaller tracts of land and parcels and appropriately leveraging existing densities, mixed-uses, or transit connectivity incrementally; the case studies undertaken within this research display this approach. The flexibility of the retrofitting strategy allows for this adaptation and reveals that retrofitting is not exclusive to areas where significant revitalization of an area is needed on a larger scale, as often demonstrated in the literature.

Recommendations

The following is a list of broad recommendations established for introducing FBCs and retrofits within a municipality in the GTA as a response to the challenges identified within this research:

1. Initially integrate FBCs on a small scale
Using a hybrid model such as the North Oakville Zoning By-law would be a fair way to test the use of FBCs in a highly controlled environment. Keeping application of the FBC at a small scale allows for any issues that emerge to be easily addressed and contained, while keeping costs of introducing regulatory change low.
2. Increase education of FBCs of planning and development professionals
Providing access to educational materials and workshops to interested practitioners, as demonstrated by Bell in the case of Mississauga, will ideally increase the ease of developing a code.
3. Utilize policy documents to outline and endorse FBCs, where appropriate
Using overarching policy documents such as Secondary Plans to support FBCs would increase the effectiveness of FBCs, as there must be a commitment from the municipality to adhere to

this framework. Endorsement of FBCs at this level would significantly increase the likelihood of developing new zoning regulations.

4. Require the identification of quantifiable benefits of FBCs and retrofits through an implementation checklist and program that includes a review occurring after several years
Quantitative frameworks currently exist to evaluate features specific to both urban design and intensification. Building on these frameworks and developing a review process that follows the completion of these projects would provide a clear way to measure what is identified as success.
5. Provide incentives for developers to initiate retrofit projects
As previously identified, many developers are wary of suburban retrofit projects due to the perception of mixed-uses as somewhat high-risk. This can be addressed through incentives provided by the municipality such as reducing development charges or including density bonuses.

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Appendix A - List of North American cities that have adopted or integrated significant aspects of form-based codes, as identified by the Form-Based Codes Institute (Canadian cities are in bold).

- Addison, TX
- **Airdrie, AB**
- Albuquerque, NM
- Alexandria, VA
- Allegan, MI
- Alys Beach, FL
- Atlanta, GA
- Austin, TX
- Azusa, CA
- Baldwin Park, Orlando, FL
- Baltimore, MD
- Baton Rouge, LA
- Belmont, NC
- Beall's Hill, GA
- Benicia, CA
- Black Mountain, NC
- Bloomington, IL
- Blue Springs, MO
- Bluffton, SC
- Bothell, WA
- Boundary Street, Beaufort, SC
- Buffalo, NY
- Burleson, TX
- Calhoun Street, Charleston, SC
- Cape Coral, FL
- Carrollton, TX
- Castle Rock, CO
- Chesterfield County, VA
- **Chestermere, AB**
- Cincinnati, OH
- Clark County, WA
- Colorado Springs, CO
- Columbia, MD
- Columbia Pike, Arlington, VA
- Contra Costa, CA
- Cornelius, NC
- Cotati, CA
- Cripple Creek, CO
- Dallas, TX
- Daufuskie Island, SC
- Davidson, NC
- Del Mar, CA
- Denver, CO
- Des Plaines, IL
- Dillon, CO
- Doral, FL
- Dover, NH
- Duluth, MN
- Duncanville, TX
- Durango, CO
- East Lansing, MI
- **East Village, AB**
- Emory University Village, GA
- Eugene, OR
- Evanston, IL
- Farmers Branch, TX
- Fayetteville, AK
- Flagstaff, AZ
- Fort Myers Beach, FL
- Fort Worth, TX
- Freeport, NY
- Fremont, CA
- Garden City, GA
- Grand Rapids, MI
- Grass Valley, CA
- Greenville, SC
- Hampton, VA
- Hapeville, GA
- Henrico County, VA
- Hercules, CA
- Houston, TX
- Howell, MI
- Huntersville, NC
- Iowa City, IA
- Ithaca College town
- Kendall, FL
- Knightdale, NC
- Knoxville, TN
- Lake Tahoe, NV
- Lake Zurich, IL
- Lancaster, TX
- Lawrenceville, GA

- Leesburg, VA
- Lemont, IL
- Lemoore, CA
- **Lethbridge, AB**
- Little Elm, TX
- **Lloydminster, AB**
- Loma Rica Ranch, CA
- Marquette, MI
- Memphis, TN
- Mesa, AZ
- Mission, KS
- **Mississauga, ON**
- Montclair, CA
- Mountain View, CA
- Naples, FL
- Naranja, FL
- Nashville, TN
- National City, CA
- Newhall Ave, CA
- **New Westminster, BC**
- Newport, VT
- North Central Texas COG
- North Richland Hills, TX
- Northampton, MA
- Normal, IL
- Oak Ridge, TN
- Ocean Springs, MS
- Omaha, NE
- Overland Park, KS
- Owensboro, KY
- Palo Alto, CA
- Panama City Beach, FL
- Parramore Heritage District, FL
- Peoria, IL
- Phoenix, AZ
- Pittsfield, MA
- Placentia, CA
- Portales, NM
- Portland, OR
- Portsmouth, VA
- Poughkeepsie, NY
- Prescott, AZ
- Prince George's, MD
- Raleigh Arena Area Master Plan & Code
- Redwood City, CA
- Richmond, CA
- Richmond, VA
- Roanoke, TX
- **Rocky View, AB**
- Round Rock, TX
- Rowlett, TX
- **St. Albert, AB**
- San Diego, CA
- San Marcos, CA
- Santa Ana, CA
- Sarasota, FL
- Seaside, FL
- Seminole Heights, FL
- Simsbury Center, CT
- Sonoma, CA
- Spring Hill, Mobile, AL
- St. Lucie, FL
- St. Petersburg, FL
- South Weymouth, MA
- Steamboat Springs, CO
- Stratham, NH
- Stuart, FL
- **Sylvan Lake, AB**
- Trinity Uptown, Fort Worth, TX
- Tulsa, OK
- Venice, FL
- **Vintage Landing, Kelowna, BC**
- University Heights, FL
- Virginia Beach, VA
- Waynesville, NC
- Wendell, NC
- West Palm Beach, FL
- **Windsor, ON**
- Winter Springs, FL
- Woodfort, KY
- Woodstock, GA

Appendix B - High-level overview of differences between traditional zoning and form-based codes.

Traditional zoning	Form-based codes
Use-based: emphasis on individual uses	De-emphasizes use: emphasis on building relationships and adapting building to its use and surroundings
Scale of districts	Scale of neighbourhoods/streets
Segregation of land-uses	Mixed-uses
Uniformity	Diversity
Lack of ability to induce change	Ability/flexibility to change or preserve
Lack of design standards	Emphasis on building/site form
Utilizes setbacks, FAR (floor area ratio), maximum building heights, parking requirements, etc. to control development	Utilizes build-to lines, street and building types, number of floors, percentage of built site frontage, etc. to control development
Emphasis on site	Emphasis on street and streetscape